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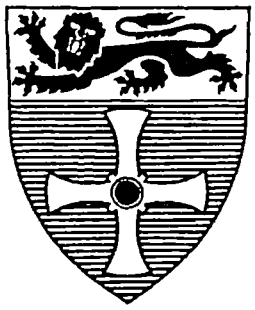

DEPARTMENT OF SPEECH

LISTENING STRATEGIES AND PROCESSES OF CHINESE LEARNERS OF ENGLISH: A CASE STUDY OF INTERMEDIATE LEARNERS IN TAIWAN

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Listening Strategies and Processes of Chinese Learners of English: a Case Study of Intermediate Learners in Taiwan

Abstract

This study is a first attempt to explore how non-participant Chinese listener-learners in an EFL context interpret native English speakers' spontaneous conversation. It was designed to incorporate the theoretical models of how second/foreign language learners derive meaning out of aural stimuli from the point of view of psycholinguistics as well as from a socio-pragmatic perspective. The study begins by identifying the relative contribution of the *factors* affecting the understanding of English oral input and diagnosing possible causes of poor listening comprehension. It then proceeds to investigate the individual's use of specific *strategies* so as to identify the most effective strategies for good listening. Finally, this study aims to develop a listening comprehension model, which will not only help to clarify the interpretative processes of Chinese EFL students, but also enable EFL teachers to focus their teaching strategies.

The research subjects were fifteen students from two freshman classes of the Department of Civil Engineering and of the Department of Computer and Information Engineering at Chung Yuan Christian University in Taiwan. They grew up and were educated in Taiwan. They were screened by the National Taiwan Universities/Colleges Entrance Exam and considered to be intellectually and cognitively equivalent. They have good first-language listening and reading skills, and are diagnosed as having normal hearing, based on the medical records on file in the Chung Yuan Christian University Health Clinic.

As to the findings on *factors* affecting listening comprehension, linguistic factors, including syntactic cues, semantic cues and semantic-syntactic cues in the text, are not equally important to the learners' understanding process. The learners' ability to

catch the semantic cues is highly correlated with their overall listening comprehension performance; their ability to catch the semantic-syntactic cues is moderately correlated with the overall listening comprehension performance; their knowledge of grammar and vocabulary is weakly correlated with their overall listening comprehension performance. Extra-linguistic factors, including visual, vocal, and contextual support, the speech rate of the speaker, and the repetition of text, play a crucial role in terms of differentiating listening proficiency levels even among advanced learners of English as a foreign language.

As to the findings on the *strategies* of the learners in listening comprehension, the results indicate that there is a significant difference in strategy use between better-listening groups and poor-listening groups. The highest-ranking group demonstrates higher frequencies of use of the three major categories of strategies (i.e. linguistic, cognitive and extra-linguistic), as well as soliciting more individual strategies. The findings also suggest that TESOL educators should help learners become more conscious of the importance and the development of more cognitively demanding strategies after they have some mastery of linguistic knowledge. Furthermore, the learners' positive attitude towards foreign language acquisition cannot be ignored in attaining a better performance with respect to listening comprehension.

Based on the strategies and processes identified in this study, a non-linear listening model, with three levels appropriate for Chinese EFL learners, was developed. The first level consists of such elements as identifying the lexical, syntactic, semantic and contextual cues in the linguistic information and activating background knowledge and previous experiences related to the topic of the text. This level contributes to the formation of idea units and the construction of the sequence of the events, which constitute the elements of the second level. The second level, in turn, has an influence on the composition of a mental image about what is being said. This mental image implies understanding, which is the element of the highest level.

Regression analysis is employed to calculate the correlations and weighting between elements and levels. The analyses throughout this model suggest that a higher speed to activate schematic knowledge and the ability to grasp a greater number of idea units are the two most predominant parameters for good listening. An inability or inexperience in sequencing the events from the text would lead a failure in the utmost understanding of the text.

Based on the findings, pedagogical implications for language learning were revealed. The following five ideas are promulgated for future research in foreign language teaching.

1. More attention to be paid to sequence construction in listening problems of L2 learners.
2. Similar research on other populations or by using different genres of listening testing materials would strengthen the validation of the proposed model of listening strategies and processes of foreign language learners in an EFL context.
3. More research to be conducted in the investigation of the effects of cognitive-demanding strategies on EFL listening proficiency.
4. A listening strategy shift from L1 to L2 would be an interesting area for future in-depth study.
5. Finally, a confirmatory study with a larger sample size is suggested to verify the model proposed in this study.

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'Developing a Model of Listening Strategies and Processes for EFL Learners' was included in the Proceedings of the Sixth International Symposium on English Teaching, English Teachers' Association/ROC, 1997 and was published in the International Journal of Psycholinguistics, 1997.

Chapter 1 Introduction

1.1 English language teaching in Taiwan

Despite the fact that for the past 45 years (1949-1996), English has been the only required foreign language in the Taiwan school curriculum from high school to university, it is commonly acknowledged that not many university students or graduates are able to sustain a spontaneous conversation in English with native English speakers. Furthermore, not many are able to understand conversational interactions between native speakers. It is a great disappointment to see that the large amount of time students in Taiwan have invested in English shows so little return considering they devote so much of their effort to the memorization of words, phrases, and 'model composition', and to the understanding of grammatical rules in order that they can achieve high scores in formal examinations. Some do pass the highly competitive national university/college entrance exam, but their communication skills in English are usually still very poor.

In English education in Taiwan, which is basically a course in teaching 'understanding written English', much emphasis is placed on the accuracy and mastery of the form of the English language. Teachers have aimed to teach their students to understand every lexical item, and to familiarize themselves with all the grammatical rules. Students learn to work out word by word, phrase by phrase, clause by clause, sentence by sentence. They believe that this is the way to gain a full understanding of everything read. They are worried if they fail to understand a particular word or phrase when they are reading. This is the way the teachers themselves have learned English. This is a typical problem for those who have learned a foreign language mainly through reading and who, therefore, find it very hard to tolerate vagueness and an incompleteness of knowledge. However, this is exactly contrary to what a good language learner requires. A good language learner is one who can tolerate vagueness and incompleteness of knowledge, and this is especially true of a good listener (Underwood, 1989: 18).

For non-English majors enrolled in a university in Taiwan, 'Freshman English' and 'English lab' are the only English courses required for graduation. The way these required Freshmen courses are taught is largely dependent on the teacher's knowledge of current EFL/ESL teaching methods and learning strategies. Most students' perception of English courses at the university level is that it is but an extension of their high school experience. Thus, student efforts are limited to the skills which they developed in high school for passing college entrance exams. Students, for the most part, not taught new learning strategies when they reach the university, gain little from the class which seldom carries them beyond simply fulfilling a requirement for graduation.

Students in Taiwan are led to form their foreign language learning habit of being word bound with listening as well as with reading. They are first offered a listening and conversation training course, English Lab, when they are in university. This is a course intended to help them to listen as well as to speak. It is taught on the basis of large group teaching in a language laboratory setting, which normally accommodates 50-65 students. Many classes are conducted in the same way: students are expected to listen to the tapes, to repeat the words or sentences that they have heard, to discriminate between sounds, to imitate the intonation and rhythm, or to identify every word, every phrase, or every sentence of the text. Teachers give some explanation about difficult vocabulary items or some grammatical rules which are encountered in the text. In most cases, students are provided with a written transcript of the text which they can refer to. In other words, students are directed to focus more on the sounds and the form of the language than the message of the text. They are very busy at deciphering every word of what they have heard or read. They often stumble over a word, a phrase, or an expression which they cannot recognize. They often complain that they just cannot keep up the speed at which speakers speak, even though most tapes are recorded in a very formal way, where words and sentences are

slowly or clearly articulated in isolation—this style of English is rarely heard in real life interactions among native English speakers. To sum up, the training for listening to authentic materials and the 'between the lines' message—the speaker's intended meaning—is often overlooked. Sometimes, students are asked to work in pairs, but unfortunately most of the time, they practice the dialogue by reading the text to their partners. Students, trained in such a style of teaching, are not helped with the development of their listening comprehension On the contrary, they constantly experience panic or frustration as they practice listening (Brown & Yule, 1983: 59). It is no wonder then that when they go abroad for further education in an English-speaking country, they experience great difficulties in listening comprehension.

1.2 Listening

Before an infant is ready to speak, he/she is capable of processing a significant amount of language input. No one knows how this works. It seems that people are born with an innate ability to process language input (Bialystok, 1994: 129). However, the ability to process a language at the time of being a baby should not be thought of as the same complex system underlying adult language behavior. It seems that the ability has been built into the child enabling him to constantly interact with his/her environment even before he/she starts to produce the language. The child develops his/her cognitive abilities as he/she carries out sensorimotor activities. It is listening that he/she depends on to complete much of the first language acquisition process within his /her first five years. This process includes discovering the rules of phonology, syntax, semantics, and pragmatics.

Listening is used more than any other single language skill as we communicate on a day to day basis. Time spent in listening is greater than that spent in other language skills. According to Feyten (1991),

> more than forty-five percent of our total communication time is spent in listening. Speaking takes thirty percent; reading takes sixteen percent; and

writing, nine percent. Listening time increases even more for students. Wolvin and Coakley (1996: 14) point out that, up to about the sixth grade (12 years of age), listening is the most efficient learning mode, and fifty-eight percent of elementary students' (7-12 years of age) classroom time is spent in listening. From then on, students learn to make use of other modes, while continuing to use listening. By the time they enter college, the lecture system draws heavily upon listening skills. Listening has always been a primary activity of college-age students. As Brown (1987) states, listening abilities remain at the very heart of all growth, from birth through to the years of formal education.

All the research on first language acquisition supports the notion that listening is essential not only to language learning but also to learning in general. The need to listen actively is a crucial initial step in the development of other learning modalities (James, 1986a). The better the listening skills are developed, the more productive our efforts are. However, a review of the literature on listening in language learning reveals that listening has never been given as much attention as any other language skill. Although an occasional plea for attention to listening was made from time to time in the field of the language learning/teaching field during the 1960s and 1970s, listening had not received much systematic attention (Dirven & Oakeshott-Taylor, 1984, 1985; Nagle & Sanders, 1986). Asher in the late 1960s stated that the readiness to talk for a child is determined by the rate at which his/her understanding of the spoken language has been acquired. Newmark and Diller (1964: 20) emphasized the need for '...the systematic development of listening comprehension not only as a foundation for speaking, but also as a skill in its own right'. From the mid-1950s to the late 1970s, researchers focused on the pedagogical aspects of listening and on its assessment. The listening researchers focused mainly on comprehensive listening (listening for understanding) and critical listening (acceptance or rejection of messages). Since the 1970s, listening comprehension has been promoted to a status of crucial importance in language acquisition (Dirven & Oakshott-Taylor, 1985: 6,8).

In 1979 the first professional society, the International Listening Association, was established solely for the advancement of listening. It brought together researchers from such varied fields as communication, psychology, counselling, education, political science, philosophy, business, law, and sociology. More attention to listening instruction was being called for. In spite of these and other research advances, however, it is probably fair to say that much more needs to be done than has been done.

What is listening? Consensus on a definition of listening among researchers has never been reached. Rankin (1926) defined listening as the ability to understand spoken language. Lundsteen (1971: 9) defined listening as 'the process by which spoken language is converted to meaning in the mind'. Barker (1971: 17) defines listening as 'the selective process of attending to, hearing, understanding, and remembering aural symbols'. Goss (1982b: 304) defined listening as 'the process of taking what you hear and organizing it into verbal units to which you can apply meaning'. Wolvin and Coakley (1996: 69) defined listening as 'the process of receiving, attending to, and assigning meaning to aural and visual stimuli'. Many other definitions include other elements such as evaluating (sorting fact from opinion and agreeing or disagreeing with the speaker), or responding (the use of verbal and non-verbal cues in reaction to a message). Rhodes (1987) pointed out that the response to the spoken word is the necessary step for the completion of the listening act, in which the communicative purpose needs to be achieved. Since listening is an activity being processed in silence, it cannot be observed. Usually, all the attention is given to the speakers. We tend to think that it is the speakers who contribute by trying to refine a thought while talking. We tend to ignore the fact that the listeners are actively facilitating the interaction of the conversation as well. Seen in this way, listening is no longer a matter of accurate understanding, but rather of reasonable interpretation. It is not just a process of recognition and passive absorption. Good listeners should be mentally checking, supporting, challenging, and predicting the

incoming information.

1.3 Listening in second/foreign language learning

With the advancement of modern transportation and the increasing frequency of all sorts of exchanges amongst nations, more people have to move or travel from east to west or vice versa. One of the most popular pastimes in all societies is to learn a foreign language or several foreign languages. Of the four language skills (reading, listening, speaking, and writing), listening is the most frequently used. Apart from this practical reason, it is not an exaggeration to claim that listening is a matter of utmost importance in learning foreign languages on theoretical and methodological grounds. Foreign language learners at all levels of language proficiency always benefit substantially from an emphasis on listening (Dirven & Oakeshott-Taylor, 1985).

Listening seems to develop easily in mother-tongue listening, but requires much more effort when listening to a foreign language. This is especially true for those foreign language learners, whose first language is based on different phonological systems, rhythms, and tones. They suffer from very poor listening skills in the foreign language and they suffer from non-understanding and/or misunderstanding of what is being said to them. One of the most difficult comprehension tasks even for advanced foreign language students is comprehension of native speakers when they converse with each other (Krashen, et al, 1984: 268). The listeners have almost no control over the dialogue: they must deal with the stream of sounds exactly as they reach them. The loss of phonetic details, some acoustic blurs on the unstressed syllables, characteristic pitch movement, or different local accents are very frequent in spontaneous conversation. In the situation of listening to a conversation between natives or hearing a radio broadcast, listeners are exposed to the language output which must be interpreted at once, even though most of the time they have little awareness of the topic, the socio-cultural setting, the informal or casual style and the

sentence structure. In contrast with non-native speakers, it is much easier for native speakers, when listening, to call upon their accumulated knowledge of the culture and background of the speaker and the situation and they will know from previous experience more or less what to expect. Many experiments have shown that even in normal listening as native speakers, the third-party listeners as non-participants might not be able to recognize what is being said if they are totally ignorant of the topics, of the situation, or of the relationship between the participants (Anderson & Lynch, 1988: 36, Rost; 1990: 69).

Listening comprehension will not develop on its own even if foreign language learners have the advantage of living in the target language environment. Many studies report that there is some relationship between a greater exposure to the target language and language acquisition (Keller, 1960; Brown, 1984). However, many other studies report that there is little or no relationship between the two. There are cases where many foreign residents do not make much improvement in English even when they have lived in an English-speaking country for many years. In his theory on second language acquisition, which has had an immense impact on second language in the past few years, Krashen (1982) indicated that an increase in proficiency can only be acquired where exposure to the target language really entails comprehensible input to the learners. The ability to produce language is based primarily on the comprehensible input, i.e., listening comprehension and reading (Krashen, 1984). To facilitate the acquisition of listening proficiency, comprehensive input must be available to the learners. How is it possible, therefore, to help EFL learners develop listening proficiency by taking in sufficient amounts of comprehension or conscious learning in a foreign language classroom?

A common assumption in foreign/second language learning is that proficiency is expressed in terms of how well one produces a language. It is believed that listening skills develop automatically alongside the drilling of productive skills. Such a belief

has dominated the pedagogy of many language teachers, who have worked hard helping students with the drilling of productive skills (i.e. speaking, writing). Therefore, for years, the focus has been upon the production skills. However, it is a matter of fact that how well we can produce a language is based on how well we can listen and read (Brown, 1984). There are sound practical reasons for developing listening ability well ahead of productive skills. Dunkel (1986: 100) indicates that the key to achieving proficiency in speaking is developing proficiency in listening comprehension. Krashen and Terrell (1983) talk about the priority of listening in foreign language learning, just as the priority is the listening-only phase when a child starts to acquire his/her first language. They emphasize the importance of large amounts of learner comprehension of spoken messages in the early stages of foreign language instruction. They note that learners must be freed from anxiety or fears in feeling they are forced to produce the language before they are ready to speak.

Evidence supports the fact that listening can be a most frustrating experience for many foreign/second language learners. Fortunately, researchers have argued that listening ability can be trained (Anderson & Lynch, 1988: 8, 18; Ko, 1992: 99). A number of research papers demonstrate that listening can be taught, and foreign language learners can gain benefits both affectively and linguistically from training in listening (Keller, 1960; Rubin, 1990). Dirven and Oakshott-Taylor (1985), the experiments in Manchester by Jordan and Mathews (1978) and in Birmingham by Dudley-Evans and Johns (1981) all indicate that listening even in specialized subject areas can be taught.

1.4 Importance of listening strategies

Language learning strategies are the devices individuals use to facilitate acquisition, storage, retrieval, and use of the information while reacting to their environment. Although this process is common to all learners, researchers have found that good foreign language learners consciously use appropriate language strategies. According to Oxford (1993), there is a great variation in the use of overall learning

strategies amongst students of different proficiency levels. It was suggested by some researchers that more highly-skilled learners might have a greater repertoire of strategies to cope with the learning situation than less-skilled learners.

Only EFL learners equipped with skilled listening strategies can be expected to have skilled comprehension processes. Rixon's (1981) study shows that L2 learners have to apply some or all of the strategies of native speakers, such as prediction or filtering for improving understanding. Goss (1982) demonstrated that a competent listener will be one with many strategies and an ability to know when to use which strategy. In Feyten's (1991) study, the result also confirms the significant relationship between listening ability and listening skills. However, researchers such as Clark (1982) as well as Reinking and Schreiner (1985) propose that high ability students may mostly profit from certain strategies, but may not necessarily have a greater repertoire of learning strategies. Many strategies have been proven effective in language learning, but are not applied automatically (Dixon, 1992; Oxford, 1993).

1.5 The significance of this study

For listening comprehension to take place, it is essential that foreign language learners should store some aspects of the linguistic input (e.g., phonemes or morphological and syntactic rules) in their memory. However, the lower the proficiency level of the learners, the more they rely on their linguistic cues (Defilippis, 1980; Kasper, 1984; Fujita, 1984; Conrad, 1985; Murphy, 1987; O' Malley, et al., 1989; Benson, 1989; Kelly, 1991; Bacon, 1992a). Successful listening requires the integration of a range of strategies (Rost, 1994: 142). Upon hearing the sounds, listeners are placed under a time pressure while they are busy at making meaning of the incoming cues. The actual comprehension takes place over a very short length of time, in which listeners need to activate all the schemas, background knowledge stored in their deep memory, and context in the situation to approximate full linguistic performance. However, how can these listening strategies be most efficiently and effectively taught in an

English classroom in Taiwan, China or countries in East Asia where students do not have much access to English outside the classroom?

As EFL teachers, we need to investigate how our students learn to listen to English and understand more fully the problems they encounter in listening so that we are in a better position of being able to help them acquire better strategies. Otherwise, all the efforts we have put in to the activities in our classroom will be of limited value. In order to learn more about an individual's use of specific strategies, this study has used various listening tests, a Likert-scale attitude questionnaire and one-to-one interviews to identify specific mental processes in interpreting spontaneous conversation amongst native speakers. As mentioned earlier, listening cannot be observed and listening comprehension is an extremely complex activity, and such a skill of listening to spontaneous conversation is one of the most difficult comprehension tasks. However, it is a skill which will prepare students for real listening in an English-speaking community. Therefore, strengthening this skill of listening comprehension can potentially improve the listener-learners' way of thinking and broaden their world vision.

The study attempts to answer the following questions:

- Would EFL learners, who have a good command of grammar and vocabulary in a written test, show a similar good performance in their listening proficiency as well?
- What are the factors contributing to the understanding of spoken English in an EFL context?
- Could there be some causal relationship between a range of strategies and a good performance in a listening assessment? Do EFL listeners of the same proficiency level at grammar and vocabulary use the same or different listening strategies? What strategies do they use to comprehend while listening and processing English, which they do not use in their everyday life? Could some

strategies be found to be more important or causative factors for the understanding of oral input?

- Could there be a listening comprehension model explaining the behaviour of the interpretative process of Chinese learners of English in an EFL context?

This study is significant in the following points.

1. Instruction of grammar and vocabulary is still a very commonly used activity in listening training. The results of this study will advance our knowledge about the nature of listening in foreign language instruction.
2. This research is unique in the sense that it employs EFL learners, who do not live in an English-speaking environment and who have had little contact with the target language, and investigates their strategies in interpreting spontaneous conversation amongst native speakers. In order to help those who live in an English input-poor environment, we need to know how they listen, and what strategies they use for perceiving and processing the information they hear.
3. Because the relationship between relevant ability and learning strategies has not been determined, this study attempts to extend this line and to expand the base of empirical evidence in the area of listening proficiency and learner strategy use.
4. The results of this study will reveal those strategies which are of primary importance for good listening.
5. This study is an important contribution to the development of a model of listening strategies and processes of EFL learners in explaining the behaviour and the needs of native Chinese speakers when they listen.
6. The result of this study will propose a pedagogic approach for dealing with the non-understanding and/or misunderstanding in cross-linguistic and cross-cultural situations. The results will be beneficial to English learners in an environment like Taiwan, China, or countries where students do not have much access to English outside the classroom.
7. Because a gap may exist between research theory and classroom reality, this study

will document empirically the relationship between what theory says and what EFL learners actually do while listening to the spoken language.

Chapter 2 Literature Review

In order to establish a theoretical framework and rationale for the present study, the following related areas of study will be reviewed. These areas include (1) factors contributing to the understanding of spoken language, (2) listening strategies, (3) approaches to listening, and (4) the models of listening comprehension.

2.1 Factors contributing to the understanding of spoken language

Understanding spoken language is a highly complex process in which the listener constructs meaning out of the information provided by the speaker. Foreign language learners of English often have difficulty in processing spoken information, for example, difficulties in word or sentence decoding, lack of prior and/or cultural knowledge, poor knowledge of the structure of the language, poor inferencing ability, or a failure to use appropriate cognitive strategies, etc.. Misunderstanding or a complete lack of comprehension may also come about as the result of a poor match between the knowledge of the speaker and that of the listener. Samuels (1984) states that knowing the range of factors which influence positive listening can help to identify potential difficulties when there is a breakdown in comprehension. An awareness of and reflection on these factors help us to diagnose possible causes of poor listening comprehension and seek solutions to improve comprehension. These factors can be categorized into three groups—linguistic factors, extra-linguistic factors and cognitive factors.

2.1.1 Linguistic factors

Linguistic factors relate to linguistic information present in the text itself. The most important features in the linguistic information contain syntactic cues as well as semantic cues. Syntactic cues consist of syntactic or grammatical rules. Semantic cues are associated with constructing the underlying propositions in connected speech. When syntactic cues serve as a guide to convey meaning, syntactic cues and semantic cues support each other in achieving an understanding of the message. Thus,

linguistic factors contain syntactic cues, semantic cues and semantic-syntactic cues.

2.1.1.1 Syntactic cues

In effect, syntactic or grammatical rules summarize regularities in the behavior of people speaking a language (Clark and Clark, 1977: 5). Familiarity with the syntactic or grammatical rules helps to segment the sound stream of the language into meaningful units. Syntactic features that carry some sort of meaning, such as, words, verb tenses, phrases, and clauses, can be consciously processed by learners at all levels in the interpretation of the input. Miller and Isard (1963) found that auditory perception of words in a noisy environment was superior when normal syntax was used than when there was a violation of normal syntax. According to Call (1985), the act of listening to and understanding aural input can be described as a series of processes through which the sounds are associated with previously learned patterns and are converted into meaningful units. As the sounds reach the auditory system, the listener exacts order by means of previously learned patterns which segment the sound stream of the language into meaningful units. In a study of the process of listening comprehension, Call (1985) aimed to test short-term memory span for five types of auditory input which seemed to be related to listening comprehension and to determine how much each type contributed to explaining the variance in standardized listening comprehension scores. Forty-one Spanish- and Arabic-speaking students participated in the study. Of these, twenty-two were intermediate students, and nineteen were advanced students. The short-term memories of these ESL students were assessed by means of a battery of tests designed to measure the progression of subcomponents, which were memory for musical tones, memory for random digits, memory for random words, memory for isolated sentences and memory for sentences in context. Proficiency in processing auditory input in English was measured by the Michigan Test of Aural Comprehension. To determine the contribution of each subcomponent of short-term memory to the total variance in listening comprehension scores, a multiple regression analysis was performed. The results showed that

memory for syntactically arranged words, that is, memory for isolated sentences and memory for sentences in context is an important component of proficiency in listening comprehension. It can be inferred that syntax plays an important role in rendering input comprehensible.

L2 listeners may also benefit from a knowledge of the text organization. Research on discourse comprehension has shown that comprehension is determined not only by the local effects (sentences or paragraphs), but also by the overall organization of a text. Each type of text—for example, stories, fables, expositories, scientific texts, and newscasts—has its own conventional structure; knowledge of these conventions will aid the listener in comprehending the text as well as in recalling it later (Carrell, 1984).

Chaudron and Richards (1986) investigated how different categories of discourse markers affected the degree to which foreign students understand university lectures. The subjects listened to a 23-27 minute lecture in which micro, macro, or micro and macro markers had been inserted. Following the completion of the lecture, cloze response booklets previously distributed were collected, and the subjects were given first the multiple-choice questions to answer, followed by true-false quizzes. The result revealed that macro-markers, that is, the higher-order discourse markers signaling the major transitions and emphasis in the lecture, for example, what I'm going to talk about today, let's go back to the beginning, this brought about new problems,... are more conducive to successful recall than micro-markers, that is, lower-order markers of segmentation and intersentential connections, for example, then, and so, but, you see, OK,... This conclusion should not be surprising. The listeners are evidently aided in organizing the major ideas in the lecture by the lecturer's signals and emphasis. Too many micro markers scattered throughout the lecture probably result in making the entire lecture appear less well organized and confound comprehension. This finding is in accordance with many existing studies

(Sticht, et al., 1974; Meyer, 1975; Smiley, Oakley, Worthen, Campione & Brown, 1977; Kintsch & van Dijk, 1978; Taylor and Samuel, 1983; Englert & Hiebert, 1984; Walters & Wolf, 1986; Carrell, 1984, 1985, 1989, 1992; Chen, 1993; Hsieh, 1995), all of which suggest that the ability to identify the structure used in discourse distinguishes good from poor comprehension. Although much of this research relating to text structure is on reading comprehension, we cannot reject the possibility that the processes of listening and reading comprehension are quite similar. In other words, listening and reading share the same underlying processes of cognitive competency and there should thus be a close correspondence between listening and reading skills, especially for the adult learner who is supposed to be cognitively sophisticated (Sticht, et al., 1974; Smiley, et al., 1977).

Another finding from the Chaudron and Richards' (1986) study was that the pre-university TD1 group did not show any significant effects like the TD2 group students. The TD1 group, who were students mainly from East Asia, had recently arrived in the US and had not yet learned the benefits of macro-markers. These findings support previous studies of listening problems. Non-native listeners do indeed have difficulties recognizing signals and markers of text organization within lectures. Chaudron and Richards stated through the observation in Yuan's research (1982) that lecture comprehension problems encountered by Chinese students at the University of California at Los Angeles are as follows:

> In general, the subjects were rather weak at paying attention to the sequence of the lecture because of their neglect of the logical connectors of sequence and their lack of recognition of transition from one main idea to another. Besides, they paid more attention to decoding the speech sentence by sentence than to extracting the science information from the lecture through understanding the rhetorical nature and functions of both textual and lecture discourse. (p.48)

2.1.1.2 Semantic cues

The ability to pay attention to semantic information, to gather meaning, plays an important part in the decoding of linguistic inputs (Kess, 1976: 214). The ultimate goal of listening is to understand the message. Tackling the meaning is more important than keeping the original syntactic forms in the processing and storage of sentences. Native speakers when they listen tend to pay more attention to semantic cues, to jump directly to the underlying proposition rather than wading through the grammatical operations. Schlesinger (1968) reported that sentences can be better interpreted if semantic cues give the direction of the sentence. 'Thus, although sentences like *The nurse the cook the maid met saw heard the butler* are indeed difficult, if not impossible, to interpret, sentences like *The rat the cat the dog barks at hissed at dug a hole* are easier to interpret because of the semantic cues they contain. The trick, of course, is that the semantic-feature ties between certain noun subjects and certain verb predicates provide immediate cues as to which noun phrases go with which verb phrases in such difficult embedded sentences. Dogs normally bark, cats normally hiss, and so forth' (Kess, 1976: 212). Kess (1976: 165) expressed how semantic information can resolve the problem of ambiguity even in the sentence where there is no grammatical error. He used Katz and Fodor's example of *The bill is large* to illustrate that certain sentences are ambiguous in ways that syntax does not explain. When with semantic information added to this sentence like *The bill was large, but the meal was worth it*; *The bill was large, but fortunately the cabbie was able to change it*; and *The bill was large, which is a characteristic of all toucans from this part of Amazonia*, listeners immediately refer back to the initial part and resolve the problem of ambiguity on the basis of such additional semantic information.

2.1.1.3 Semantic-syntactic cues

Can learners attend to the form and the meaning of input simultaneously? The most striking feature of listening processing is its rapid speed. According to Baddeley, the time span over which actual inference processes take place is typically fifteen to sixty

seconds in duration (Flowerdew, 1994: 95). Our short-term memory space is limited. In the process of interpretation, would syntactic and semantic features be supportive of each other or compete? In his study, VanPatten (1989) aimed to investigate this question. Three levels of classes were chosen and a total of 202 students of Spanish at University level participated in the study. Each class listened to two short passages. The first passage served merely as a warm up while the second was used as the data source. Classes were randomly assigned to complete one of the four listening tasks. Task 1 consisted of listening for content only, task 2 consisted of listening for content plus verb morphemes, task 3 consisted of listening for content plus the definite article and task 4 consisted of listening for content plus key lexical items. Their comprehension assessment consisted of free written recalls in English. The recall protocols were subsequently scored by idea units based on syntactic and semantic features. The results revealed that task 1 produced the highest number of recalls, followed by task 4 and task 3. Task 2 had the lowest scores. The findings demonstrated that conscious attention to form in the input competes with conscious attention to meaning, learners have difficulty in attending to form which does not contribute substantially to the meaning of the input, but they seem to be noticing consciously those types of forms that carry significant information. This finding accords with Schlesinger's view (1968: 122). He named the process of lexis-first decoding as semantic-syntactic decoding, because the listener perceives the essential lexical cues and rapidly assigns them to roles such as actor, action, object, etc., according to his world knowledge. The listener only resorts to syntactic rules when this does not work in very complex sentence structures.

2.1.2 Extra-linguistic factors

Extra-linguistic cues derive from what the listener feels, hears or sees at the moment of utterance. They could be visuals, for example, body movement, gesture etc., vocals, for example, stress, intonation, pitch etc., non-verbal cues, the speech rate, repetition of the text, or contextual support. All of them can have a significant effect

on listening comprehension.

2.1.2.1 The speech rate

One key factor that influences listening comprehension is the rate of speech (Sticht, 1972). When language is spoken at normal speed, the foreign words reach the listener's ear so rapidly that they quickly build up, the short-term memory overloads, and the listener simply feels that whatever language "whizzes by", it is rapid and unintelligible. In conversational English, the average word has about five distinct sounds. Since native speakers typically speak at a rate of about 150 words per minute, this means that they utter about 12.5 sounds per second. As experiments have shown, however, the human auditory system cannot distinguish more than two or three sounds per second. Therefore, when we listen to language, we identify the sounds of language from a sample of sounds during a stream of speech. Pimsleur, Hancock, and Furey's study (1977) shows that French and American news announcers deliver their information at approximately 180 words per minute. That means that they deliver 15 sounds per second. This might explain why radio broadcasts are well beyond the comprehension of most L2 learners. Often, it is not the ideas, the vocabulary, nor the grammar which impede understanding, it is the flow of words which is beyond the control of the listeners.

2.1.2.2 Repetition of the text

It is a general learning principle that repetition of material presented in context helps the listener to remember it. Does repetition help in the construction of meaning in listening interpretation? Lund's (1991) study investigated the effect of repetition on recall immediately following the listening task. All 30 students in the first, second and third semester German courses at Brigham Young University participated in the study. The results indicated that a second hearing of the text significantly benefited all the participants; however, Course Three listeners benefited more from the second trial than the beginning listeners in Course One and Two. Lund attributed some of

the improvement on the second trial to the first written recall, which encouraged the listeners to form an explicit representation of the text. Firstly, it provided a context that opened up the meaning of additional vocabulary. Secondly, it provided a test structure for meaning to be fitted to the text on the next repetition. Finally, it made clear to the listener where the gaps and uncertainties were located and where resources could be concentrated on the second processing of the text. Lund emphasized that it is the reprocessing itself that helps to gain understanding. Chaudron (1983) studied the effects of topic signalling in experimental lectures on ESL (English as a Second Language) learners' immediate recall of topic information. The subjects were chosen from an intensive English language programme preparing for tertiary education in the United States. The study attempted to determine the influence of different input structures. The variant re-instatement structures tested were repetitions of the noun topic, rhetorical questions, synonyms, conditional clauses and simple noun re-iteration. The research question posed was whether syntactic simplicity or elaboration and redundancy would be more effective in promoting the retention of the topic. Chaudron illustrated that the definition of what is simplified speech can be quite different for different learners. Simplification may either involve a reduction or regularization of surface forms or, alternatively, an increase in surface forms for the sake of elaboration or clarification. The results showed that recall was significantly better for the repeated topic than for the more complex signalling of topic change. This finding implied an important confirmation of the value of redundancy as a simplifying feature.

Cervantes (1983) studied the effect of exact repetition on learner comprehension, as measured by a dictation score. One group of non-native speakers heard each segment only once before transcription, while the second group received the sequences twice. The results indicated that the group receiving the repeated input had a significantly higher comprehension score than did the students who heard the passage only once.

2.1.2.3 Visual, vocal, or non-verbal cues

Accompanied with the actual verbal words, phrases and sentences, non-verbal cues which are present in the situation of utterance affect the interpersonal communication in a very subtle but powerful way (Kess, 1976: 133; Richards, 1983; Crystal & Varley, 1993). Research has discovered that non-verbal behaviour such as body movement, body and head postures, and facial expressions do in fact transmit valuable information about the emotional state of the speaker (Kess, 1976: 147). Similar to these visual cues is our use of socially-agreed upon considerations, such as socially recognized personal space or our perception of that space as personal territory. They definitely influence our understanding of spoken language. Vocal cues, such as voice quality, varying pitch, stress, and pauses between words and phrases can add richness and interest to what the speaker is saying, and help to facilitate comprehension. For example, pitch, stress, and pauses can be used to distinguish between meaningful units in the English language. Voice quality which includes pitch range, vocal lip control, glottis control, pitch control, rhythm control etc., can also have an effect on the interpretation of what listeners hear.

2.1.2.4 Contextual support

Contextual cues, for example, using pictures as visual cues or giving statements relating to the topic of the passage content, can serve as an anchoring framework. In his study, Mueller (1980) attempted to determine the effect of visuals on the listening comprehension process. He argued that the visuals activated relevant aspects of stored memory, thereby providing a framework which would enable learners to understand the passage. Hudson (1982) investigated the effect of activating content schemata on ESL reading comprehension in three ways. In the first, subjects read a passage, took a test, re-read the passage, and took the test again. In the second, subjects were presented with a vocabulary list before reading. In the third, subjects were shown a picture relating to the topic of the reading passage and were asked to

make predictions about the passage content before reading. The results revealed that the third method had a significantly greater effect than the first two in aiding the learners' comprehension, especially at beginning and intermediate proficiency levels.

Rost (1989) explored how second language listeners interacted with pre-recorded academic lecture texts. The analyses indicated that elaborative episode insertion did have a significant effect on subsequent task performance and the prior presentation of background information for the lecture did affect subsequent task performances. Herron, Hanley, and Cole's (1995) study also confirmed the significance of prior contextual support. Their study compared student retention of information using foreign language videos in two different ways. Advance organizers, which were relevant to the topic of the listening text, were given to the students in advance of listening. Thirty-nine English-speaking college students on a beginning-level French course participated in the study. In one condition, the teacher read aloud six sentences that summarized major scenes in the video they were to see. In the other, the teacher presented six identical sentence descriptions of major scenes in the video. The difference between these two conditions was that in the second as the teacher read one of the six sentences aloud, she also showed a picture related in context to the sentence but not a pictorial translation of it. Student performance with the second language (L2) videos introduced in each of these two ways was tested. A series of discrete-point tests were administered to subjects in both conditions immediately after the video viewing. Results indicated that the additional visual support offered in the second condition significantly improved comprehension of the videos. The investigators suggested that the more meaningful the advance organizer, the more impact it would theoretically have on comprehension and retention.

However, many research results showed that the prior contextual support is more effective for learners at beginning or intermediate proficiency levels. Their findings revealed that visual contextual cues used as script activators significantly enhanced

comprehension for foreign language learners at the lower proficiency levels. Subjects at higher levels of proficiency were not affected by the use of such cues. Therefore, visuals in and of themselves do not necessarily enhance comprehension; however, the degree to which contextual visuals can be expected to enhance listening comprehension depends upon the degree to which they provide contextual cues which may otherwise not be available to the listener. The results pointed up the interesting question of interaction between foreign language proficiency and background knowledge in comprehension.

2.1.3 Cognitive factors

Cognitive factors exist or work in the listener's brain. They contain prior knowledge, inference and intelligence. They are essential factors for good listening.

2.1.3.1 Prior knowledge—schematic knowledge in listener's head

Prior knowledge, what is sometimes more technically called schematic knowledge, plays a very important role in the information processing of foreign language material by non-native speakers. The listening process involves the listener in reconstructing the intended spoken message by integrating his/her background knowledge into meaningful units grouped from the lexical and grammatical information in the listening text. The role of prior knowledge has been recognized in schema theory by several scholars (Swaffar, 1988; Long, 1989; Chiang, 1990). The basic premise of schema theory is that an individual interprets the text by using prior knowledge to produce an anticipated meaning, and the individual can only acquire this anticipated meaning through the interaction of the text and the individual's prior knowledge stored in the long term memory. In other words, text does not convey meaning by itself, rather, text only provides guidance for listeners as to how they should construct the intended meaning from their own previously acquired knowledge. Meaning occurs as a result of the interaction between the listener's knowledge and the text. Research evidence concerning the importance of prior knowledge in first and second

language reading comprehension is profuse. Consideration of prior knowledge should be of equal importance in listening comprehension (Markham and Latham, 1987).

Schematic knowledge can be classified into schemata, cultural or religious background knowledge, pragmatic knowledge and linguistic knowledge (Carrell, 1983). Research results support the idea that schematic knowledge plays a very important role in the listening comprehension of foreign language learners (Weissenreider, 1987; Bransford & Johnson, 1972; Long, 1985; Markham & Latham, 1987; Kasper, 1984). For ESL learners there is sometimes a mismatch between the prior knowledge presented by the text discourse and the prior knowledge they possess. Such a mismatch leads to a breakdown in the communication of information. L2 learners may have difficulties in understanding because of poor linguistic knowledge of the language, lack of cultural knowledge or pragmatic knowledge, violation of the social rules of the target language, or a poor match between the knowledge of the speaker and that of the listener.

a. Schemata

To date, several empirical studies have been carried out showing the effects of prior knowledge on second or foreign language comprehension (Carrell, 1983). Current research on schema theory has identified two basic types of schemata: content schemata and formal schemata (Carrell, 1987). Content schematic knowledge is claimed to be background knowledge about the content area of a text—for example, a text about washing clothes at the launderette, building a yacht, the history of Israel, problems of nuclear breeder reactors, etc. Formal schematic knowledge relates to the rhetorical structures of different types of texts. For example, expository texts, scientific texts, stories, or newscasts differ in structure. In other words, part of our background knowledge includes information about, and expectations of differences among different types of texts. In a study of ESL readers, Carrell (1987) found that

content schemata have a more profound effect on ESL reading comprehension than do formal schemata. More effective comprehension results, however, when both content and form are familiar to the reader. Weissenreider (1987) studied the content and structure of Spanish news broadcasts. Her results show that both textual schemata (knowledge about the newscasting process) and content schemata (familiarity with specific news themes) aid the listening comprehension of non-native speakers, particularly when the subjects are able to incorporate effective, cognitive strategies.

Efficient comprehension requires the ability to relate the text to one's own knowledge. If it is activated, prior knowledge can help to facilitate comprehension more effectively. Comprehension can still be poor when the listener has the necessary knowledge but is not able to make the necessary connection between their background knowledge and the text in order to understand the speaker. In their study of the role of prior knowledge in listening comprehension, Bransford and Johnson (1972) aimed to show that not only is prior knowledge reflected in the subjects' performance but that certain knowledge may be necessary for the meaningful processing of the information. The subjects were tested as a group in a single session. They were given a tape-recorded passage and were told to recall the passage as accurately as they could. For measuring comprehension, the number of the correct idea units were scored on the basis of individual sentences, basic semantic propositions or phrases. The result indicates that prior knowledge of a situation does not guarantee its usefulness for comprehension. It must have an activated semantic context in order to aid comprehension.

b. Cultural or religious background knowledge

A number of studies on cross-cultural comprehension have concluded that background knowledge facilitates reading and listening comprehension. In Steffensen and his colleagues' (1979) study, subjects from the United States and India were asked to read

passages about an Indian and an American wedding and to recall the information in the text. The researchers found that subjects who read the passage that reflected their own culture's wedding customs read faster, recalled more of the gist and made more appropriate cultural elaborations of the information presented. Subjects who read the passage on wedding customs foreign to those of their culture produced more cultural distortions.

Johnson (1981) studied the effects of cultural background knowledge and the complexity of the language on the reading comprehension of 46 Iranian intermediate and advanced ESL students and 19 American subjects. In her study, half of the subjects read an unadapted version of two English-language texts, one from Iranian folklore and one from American folklore; the other half of the subjects read the same stories in simplified English. The subjects were then given a multiple-choice test covering the content of the texts. The results showed that the cultural background of the story had a greater effect on the comprehension of the ESL students than the level of language complexity. American students recalled more of American folklore; however, both language complexity and cultural background affected the reading comprehension of all subjects.

Long (1985) also confirmed the effects of cultural background. He carried out two studies on foreigner talk using intermediate-level university students from an Asian background. The subjects were divided into two groups to listen to different versions of the lecture; a native speaker version, and a foreigner talk version (an adapted version for non-native speakers). The results indicated that the average score of the group listening to the foreigner talk version was significantly higher than the average score of the group listening to the native speaker version. In the course of his investigation, Long (1985) concluded that familiarity with the cultural content of a lecture played a critical role in the recall of the non-native speakers and was, in fact, even more important than the effect of the speaker's linguistic adaptation.

Markham and Latham (1987) studied the influence of religion-specific background knowledge on the listening comprehension of adult L2 students. The purpose of their study was twofold: firstly, to provide some empirical evidence that religious background knowledge has significant influence on ESL students' listening comprehension, and secondly, to provide both quantitative and qualitative data which would indicate the need for the greater consideration of schema theory in the context of L2 listening comprehension. Students were judged to be at the same level of English language proficiency based on the Comprehensive English Language Test (CELT) and the Test of English as a Foreign Language (TOEFL). Sixty-four university-level students participated in the study. Twenty-eight students declared themselves as religiously-neutral, that is, they had virtually no knowledge of Moslem or Christian religious rites. Sixteen of the students declared themselves to be practising Moslems, and 20 declared themselves to be practising Christians. The students listened to one passage describing the prayer rituals of Islam and a second passage describing the prayer rituals of Christianity. Retrospective interviews were conducted immediately after the students completed the recall protocol tasks. Students described their language behaviour with a minimum amount of structured elicitation and little external intervention by the investigator. The results clearly indicated that passage content exerts a powerful influence on the listening comprehension of ESL students professing close ties to a particular religion. Particularly strong differences were observed regarding the recall of major idea units. Students adhering to a specific religious group recalled more ideas, produced more appropriate elaborations and fewer inaccurate distortions regarding the spoken passages associated with their particular religion.

c. Pragmatic knowledge

Failure to understand can occur because of the hearer's lack of knowledge of the social rules or the pragmatic semantics of the target language. For example, when a westerner wants to close a conversation by saying 'Why don't we get together to have

a meal some time?', Asians, for example, Chinese by reading the literal meaning of the spoken words, may fail to get the intended message and feel disappointed with waiting to be invited. In his exploratory study on reception in aural communication, Kasper (1984) focused on L2 Learners' pragmatic comprehension of the speech act and discourse functions in role-play situations between German learners of English and native speakers. This study looked into learners' practical misunderstandings and their failure to understand what the native speaker's intended meaning was. Kasper explained that the learners relied too heavily on bottom-up processing and they had problems in making the necessary connections between the text and the appropriate background information.

Two examples are given as follows:

Situation 1: learner (L) has taken on a holiday job as a strawberry picker on the native speaker's (E) farm.

Dialogue:

L: hello Mr. Knox here I am again with my basket

E: oh hello Peter how are you

L: oh well I think I'm very fine now well it's hard work but it's nice to have such good contact with people you see I like it

Situation 2: L taking leave from her landlady with whom she stayed for two years. Emotional involvement in both parties.

E: I've got some sandwiches ready for you here I hope it will be enough

L: yes of course it will be enough

Kasper explained that in situation 1, the learner tried to make sense of the sentence from every word and failed to gather the correct interpretation of the native speaker's utterance which was a 'routine inquiry'. In situation 2, the learner decoded the E's

utterance word for word. She failed to identify E' cue, 'I hope', as a wish and also she had a lack of knowledge of the practicalities of leave-taking. Therefore, she misinterpreted the wish as a request for information.

d. Linguistic knowledge

As described previously, schematic knowledge plays a critical role in listening comprehension. However, the linguistic knowledge, which covers syntactic cues and semantic cues, is also part of the schematic knowledge. While processing the oral input, listeners have to draw upon this linguistic information in their long-term memory to identify the meaning of the spoken message.

2.1.3.2 Inference

As described above, prior knowledge is very important in facilitating comprehension. However, background knowledge can help to facilitate comprehension more effectively if it has an activated semantic context for the listener to make inferences. Therefore, the ability to infer is another critical factor that influences comprehension. Listening comprehension is essentially an inferential process (Rost, 1990). Comprehension can still be poor even when the listener has the necessary knowledge but is not able to make the necessary connection between background knowledge and text to understand the speaker. In other words, efficient comprehension requires the ability to relate the text to one's own knowledge.

Bransford and his colleagues (1972) carried out a series of experiments to explore the role of inferences in listening comprehension. The result indicates that prior knowledge does not guarantee its usefulness for comprehension and it must have an activated semantic context in order for the meaningful processing of the information to take place. Difilippis (1980), O'Malley, Chamot, and Kupper's (1989) research, Laviosa (1991), and Vogely (1995) all provide evidence of the importance of using inferencing for successful listening. All these experiments suggest that good

listeners are not passive receivers of linguistic inputs. As soon as they hear or read the first words in a sentence, they start making inferences about what is likely to come next, taking into account what they have already heard as well as their general knowledge about the speakers' intentions and the likely topic of discourse.

When we listen, we have information based on prior knowledge of the setting and the speaker. We have a lot of contextual knowledge about the situation we are in. We often know the age, sex, position and job of the speakers. Very often we have a purpose for listening. We do not necessarily want or need to hear everything that is said. We tend to recognize key lexical items related to the main topic first, to extract meanings of the words from the context, and to infer a basic understanding of the message. In other words, we need only sample the stream of linguistic inputs and infer sounds we do not actually hear to comprehend the intended meaning from the context.

The inference process involves creating meaning by building a relationship between the input text at all levels—phonological, lexical, syntactic, semantic or pragmatic and what we already know. In other words, inferences are constantly being made from what is overtly said, as well as from what is implied, understood or generally known (Kess, 1992: 6). In his recent work *Introducing Listening*, Rost (1994:17) stated that speech perception involves processing at many different levels and the information at one level may be used to resolve problems at another. For example, in order to comprehend information at the sound level, we need information learned at other levels. Wittrock, Marks, and Doctorow's (1975) study shows that learners can even generate semantic meanings from low-frequency undefined synonyms inserted into familiar stories. Learners can quickly learn and retain many new undefined vocabulary items when the words are introduced in the context of familiar sentences and stories. Therefore, effective comprehension can be achieved if listening involves processes that create meaning by building relationships between what we hear and

what we already know. The inference process, however, can only be carried out efficiently with continuous speech in context. We cannot perceive speech well when sounds, syllables and words are in isolation. We can succeed in understanding speech only when we have a context to guide our interpretation.

2.1.3.3 Intelligence

Comprehending a language as it is being spoken is recognized to be a complex, active process. Intellectual ability is a requirement for good listening (Vineyard, 1960). On some occasions, it is useful for the listener to pay attention to the literal meaning of the utterance. In others, it involves listeners in thinking more deeply, in making a more extensive inference, evaluating and judging the message, etc. This level of comprehension would be dependent on the listeners' intellectual abilities. According to Samuels (1984), as far as students with IQ levels above 50 are concerned, meaningful comprehension of spoken language will take place, providing the topic is familiar. As to what is comprehended, and how much or how fast, this is related to a listener's intelligence, especially in the academic field. Beatty and Payne (1984) assume that listening comprehension is dependent, in part, upon an individual's level of cognitive complexity. In both studies, they examined the extent to which immediate recall of fairly difficult material was a function of the listener's level of cognitive complexity. Comprehension was operationally defined as immediate recall. The P.C.T. was administered to measure the cognitive complexity of the subjects. As a result of the PCT scores, they were divided into three groups: high complex, moderately complex and low complex. The subjects were instructed to take an immediate recall test after they listened carefully to the taped selection. The results of the two studies indicated that successively higher levels of complexity are associated with greater comprehension. It should be noted that while two separate topics were employed as stimulus material, both topics were relatively technical and the language was fairly difficult.

2.2 Listening strategies

There is a great variation in the use of overall learning strategies amongst students of different proficiency levels (Oxford, 1993). For the last decade, the investigation of learner strategies has been recognized as a vital area of second language research (Vogely, 1995). Research shows that learners do have listening strategies and that there are some differences in what they do in order to comprehend aural stimuli (Fujita, 1984). There have been quite a number of studies on listening processes and strategies for EFL learners which investigate the differences in strategies used between more proficient listeners and less proficient listeners. In the studies reviewed, these two groups of listeners were mainly identified as a result of a listening proficiency test. The most important conclusions can be grouped into seven categories:

1. the teachability of listening strategies
2. the use of syntactic and semantic cues
3. the use of schema
4. the number and variety of strategies
5. the direction of strategy processing
6. the classification of listening strategies
7. the changing of strategies with different texts

2.2.1 The teachability of listening strategies

Research suggests that learning strategies are readily teachable and that specific listening strategies for specific tasks can be taught to learners of all proficiency levels (O'Malley, et al., 1985; Brown, et al., 1987; Oxford, 1989; O'Malley, et al., 1989). O'Malley, Chamot, and others (1985) tried to identify strategies associated with a range of tasks typically found in ESL classrooms and in other settings. This study, which was conducted with high school ESL students, was carried out in two phases. In Phase 1, ESL students and their teachers were interviewed. Results indicated that students used a variety of learning strategies but typically used more familiar

strategies and applied them to discrete-point tasks such as vocabulary and pronunciation, rather than integrative tasks such as listening and making an oral presentation. The results of Phase 1 suggested special instruction on strategy applications with language learning tasks may be useful for higher-level language activities such as listening and speaking. In Phase 2, ESL students were randomly assigned to undertake learning strategies training in vocabulary, listening, and speaking tasks. The listening task that students were requested to perform was to remember information presented in four 5-minute videotapes. All pre-tests, post-tests, and interim assessments were multiple-choice recognition items. In Phase 2, results indicated that strategy training could be effective for listening. One of the ways to enhance note-taking skills with a megacognitive strategy would be to provide students with specific types of information to attend to in lectures, that is, to use selective attention for specific linguistic markers, typically used in lectures to present an overview, a main topic, main points, examples and a conclusion or summary. O'Malley, Chamot, and Kupper (1989) claimed that strategic modes of processing can be taught, and that use of strategic processing can enhance learning. To conclude, our language teaching methods frequently affect the learners' use of language learning strategies. Unfortunately, most language instructors are not aware of their students' learning strategies, or how these strategies can result in particular kinds of problems (O'Malley, et al., 1985a; O'Malley, et al., 1985b; Chamot, et al., 1987). Since teaching methods often influence how students learn, teachers should become more aware of their students' learning strategies in order to orientate teaching methods more appropriately.

2.2.2 The use of syntactic and semantic cues

Research reports support that more proficient listeners can draw simultaneously on both syntactic and semantic knowledge to produce better comprehension. In Long's (1990) study, the findings indicated that linguistic knowledge plays a prominent role in comprehension when appropriate schemata are not available to the listener, but

does not seem to play as important a role when the subjects possess relevant schemata. The subjects who had both linguistic knowledge and schemata working together produced better comprehension. In Conrad's (1985) study, the results indicated that native subjects processed the aural message using primarily semantic units, whereas second language subjects directed proportionately more attention to the syntactic information in the message. However, with decreasing proficiency, L2 listeners showed that they had to base their expectations of the message on cues closer to the surface of the language. With increased proficiency, listeners showed greater attention to the semantic than to the syntactic or phonological cues. Similar results in Benson's (1989) study show that the development of listening processes involves the reduction of incoming linguistic data.

2.2.3 The use of schema

More proficient listeners are better able to connect what they hear with what they know (Martin, 1982; Kasper, 1984; Murphy, 1987; O'Malley, et al., 1989; Chamot, et al., 1989; Laviosa, 1991; Bacon, 1992a; Bacon, 1992b; Vogely, 1995). More proficient listeners monitor globally, use background knowledge successfully, maintain attention to the meaning of the input. and are purposeful in performing tasks. Difilippis (1980) found that skilled listeners were better able to organize auditory information for recall than unskilled listeners. His study provides evidence of the importance of using inferencing, monitoring and contextual knowledge in order to derive meaning from an aural task. According to Laviosa (1991), the difference between the two groups was influenced by the listeners' previous knowledge of the topic as well as by their ability to grasp the global meaning of the text, to decode individual words and to establish a relationship between the two. In Bacon's (1992b) study, the result indicated that successful listeners used background knowledge effectively and maintained attention to the meaning of the input. The subjects in Vogely's (1995) study reported that their most effective strategy was to relate the text to what they already knew about the topic.

2.2.4 The number and variety of strategies

Most of the research does indeed show that good language learners use more learning strategies than do poor language learners (Oxford, 1989; Oxford and Nyikos, 1989). More-proficient listeners use a higher number and a greater variety of strategies (Murphy, 1987; Chamot, et al., 1989; Bacon, 1992a). In his investigation into listening strategies, Murphy (1987) attempted to probe into the listening process of two groups of more or less proficient intermediate-level ESL college students. The research participants were placed into the higher or lower proficiency level group according to their performance on three different measures. Murphy elicited their listening strategies based on the transcriptions of the research participants' oral and written responses to commercially available tape-recorded listening selections. The result was that the more proficient listeners used a higher number and a greater variety of strategies. The image for listening arising from this investigation is that of an interpretative language process in which a variety of listening strategies interweave. Chamot, et al.'s (1989) findings also indicate that, in general, more-effective listeners use a greater variety of strategies and use them in ways that help them complete the language task successfully. This result is also consistent with what Bacon (1992a) indicated in his study: more-successful listeners reported a greater number and range of strategies. They were flexible in changing strategies to meet the task and were motivated to understand.

However, researchers such as Clark (1982) as well as Reinking and Schreiner (1985) proposed that higher ability students may profit from certain strategies, but may not necessarily have a greater repertoire. Many strategies have proven effective in language learning, but they are not applied automatically (Dixon, 1992; Oxford, 1993). Difilippis (1980) reports that the total number of strategies employed by two groups of research participants was nearly equal. Vann and Abraham (1990) discovered that unsuccessful language learners failed to apply the necessary strategies appropriately

for the completion of the task. O'Malley, Chamot, and Kupper (1989) suggest that it is not the greater number of strategies, but the frequency and type of strategies listeners use which differentiate effective from ineffective listeners.

2.2.5 The direction of strategy processing

From another perspective, strategies can be considered as a special kind of process which controls the order in which a sequence of operations is to be performed (Miller, Galanter, Pribram, 1960: 16). In terms of the direction of spoken language processing, strategies can be identified as either bottom-up or top-down. Based on a bottom-up process in psycholinguistics, L2 learners understand the spoken input by building up from the phonological units at the lowest level followed by sounds, words, phrases, sentences, ideas, relationships and hierarchies between ideas. In other words, they use input from 'lower' levels to build comprehension at progressively 'higher' levels (Brown, 1977: 10). They begin to develop the top-down processing strategies when their proficiency in a foreign language improves (Perklin, 1989). A number of studies indicate that more proficient listeners tend to approach listening with both top-down and bottom-up processing strategies whilst less proficient listeners employ more bottom-up strategies. More proficient listeners direct more of their attention towards semantic cues whilst less proficient listeners focus on the syntactic or phonological cues of the language (Steer, 1945; Sticht, 1972; Clarke, 1979; Flaherty, 1979; Difilippis, 1980; Kasper, 1984; Fujita, 1984; Conrad, 1985; Murphy, 1987; O'Malley, 1989; Kelly, 1991; Bacon, 1992a).

Difilippis' study (1980), one of the first attempts in second language research in listening which employed a psycholinguistic analysis, analyzed and compared the listening strategies of skilled and unskilled L2 learners in French. On the basis of raw scores on the MLA Cooperative Foreign Language Test in French, the top thirteen students were identified as skilled listeners, and the bottom thirteen students as unskilled listeners. Defilippis elicited the listening strategies of research

participants by using a test instrument consisting of a series of audio-taped aural comprehension tasks at five developmental levels. This test was administered to each subject within a semi-structured interview. The subjects were asked to self report the listening strategies which they employed as they attempted to solve each of the aural comprehension tasks. The results showed that the three major listening strategies of skilled listeners were a key-word strategy, a contextual inferencing strategy and a grammar strategy, whereas the three major listening strategies of unskilled listeners were a key-word strategy, a translation strategy and a contextual inferencing strategy. In addition, unskilled listeners employed a translation strategy and a key word strategy more frequently than skilled listeners. Fujita (1984) attempted an initial study to uncover and describe the perceived successful and unsuccessful listening strategies of eighteen adult learners of beginning college Japanese students at the United States Air Force Academy. He combined qualitative and quantitative methods to investigate the listening strategies. Subjects heard taped segments that were based on the lexicon and structures included in the Japanese curriculum. Fujita reported that the predominant strategy for his sample was translation and note-taking, either mentally, in writing or both. O'Malley, et al.'s (1985) study aimed to identify strategies that beginning and intermediate ESL students of Spanish and Russian used in the processing of learning materials. They found that beginning level students used more translation than intermediate level students. This confirmed Difilippis' and Fujita's findings.

O'Malley, Chamot, and Kupper's (1989) study claimed that, in general, effective listeners seem to approach listening with both top-down and bottom-up processing strategies, while the approach of less effective listeners was consistently a bottom-up strategy. Bacon (1992a) conducted a study of the strategies, comprehension, level of confidence and affective response of fifty motivated, non-proficient Spanish learners whilst listening to authentic input in Spanish. The subjects did not have a great deal of exposure to authentic input outside of the class.. The results indicated that these

non-proficient learners were more likely to report using bottom-up, followed by top-down processing. Bottom-up strategies were more prevalent than top-down.

However, there is a self-contradictory statement in Murphy's (1987) findings. Murphy's research (1987) records that less-proficient listeners tend either to base their comprehension exclusively on text characteristics or on their own background knowledge. Lund's (1991) and Hayasshi's (1991) studies also confirm that less-proficient listeners tend to base their comprehension more heavily on their own background knowledge. Whilst studies of reading and listening comprehension indicate that L2 listeners are more likely to use bottom-up strategies, there are other studies that suggest that the opposite might be the case (Hayashi, 1991: 151). In Hayashi's study, he reveals that L2 listeners are bound to rely on top-down processing more than L1 listeners because L2 listeners often have problems in processing acoustic-phonetic information. Therefore, less-proficient listeners are more likely to start out to guess and invent a plausible context for the spoken text. This leads to a danger that they might produce erroneous constructs for the text by using top-down processing (Long, 1990: 72). It suggests that the meaning of the text needs to be constructed creatively with top-down processes but needs to be confirmed by attending to the words of the text through the bottom-up decoding process.

2.2.6 The classification of listening strategies

Goss (1982) discusses three general strategies used by a listener at any level of speech processing. Firstly, he/she uses the pauses found in a speaker's natural speaking pattern to process what is being said. He/She takes the very briefest time afforded by pauses to think about the message. Secondly, the relative level of redundancy and predictability in the speech allows time to process the content of the spoken sentences. When two people interact with each other, they do not have to search for the meaning of each word. They need to listen for the content words, which carry the main idea, whilst monitoring the other words, which primarily serve a grammatical function.

This means that people don't need to understand each word thoroughly to comprehend the sentence. Thirdly, listening probably involves a rapid predict-then-confirm strategy. At any point of the speech processing, the listener keeps predicting upcoming thoughts while simultaneously confirming previous predictions. In other words, listening is guided by the predict-then-confirm pattern.

Martin's study (1982) categorized listening strategies into two groups: 21 on the word level and 13 on the idea level. While the former were used to associate meaning with specific words, the latter dealt with the establishment of a topic and the association of subsequent meanings to the main idea.

Murphy's study (1985) results in seventeen strategies classified in six broad categories as shown below:

Strategy Grouping and Individual Listening Strategies

Names for Strategy Groupings	Names for Individual Listening Strategies
(1) Recalling	Paraphrasing Word-Hooking Revising Checking
(2) Speculating	Inferring Connecting Personalizing Anticipating
(3) Probing	Analyzing the topic Analyzing the conventions of language Evaluating the topics
(4) Introspecting	Self-evaluating Self-describing
(5) Delaying	Repeating Fishing
(6) Recording	Notetaking

O'Malley, Chamot and others' study (1985) identified a total of 26 strategies used by beginning and intermediate ESL students to improve second language learning and retention. These learning strategies were classified into three broad categories—(A) metacognitive strategies, (B) cognitive strategies, and (C) social mediating strategies. Metacognitive strategies include advance organizers, directed attention, selective attention, self-management, advance preparation, self-monitoring, delayed production, self-evaluation, and self-reinforcement. Cognitive strategies include repetition, resourcing, directed physical response, translation, grouping, note-taking, deduction, recombination, imagery, auditory representation, key word searching, contextualization, elaboration, transfer, inferencing, and questioning for clarification. Cooperation is also taken into consideration for social mediation strategy.

Synthesizing previous classification work by researchers, such as O'Malley, Chamot, Rubin and others, and her own research on language learning strategies, Oxford (1989) has developed a list of six broad strategy categories: memory strategies for remembering and retrieving new information; cognitive strategies for understanding and producing the language; compensation strategies for using linguistic or non-linguistic cues to overcome limitations; metacognitive strategies for planning and evaluating the learning process; affective strategies for regulating emotion; social strategies for learning with others.

Laviosa (1991) investigated (1) the types of problems encountered by the subjects in listening comprehension, (2) the kinds of planning processes activated and the strategies applied to cope with problems in listening comprehension; and (3) the correlation between types of problems and strategies in L2 listening. His study produced three interconnecting taxonomies of nine problems, three planning processes, and seven strategies. These seven strategies include contextual inferring, seeking confirmation, using background knowledge, associating, using cognates, selecting and vocalization/visualization.

2.2.7 The changing of strategies with different texts

In order to identify strategies that beginning and intermediate ESL students of Spanish and Russian can use to improve L2 learning and retention, O'Malley, Chamot, and others (1985) elicited their strategies through small group interviews with ESL students, and with teachers as well as by observation of ESL classrooms. However, they found that more strategies tended to be identified through interviews with students. They found that beginning and intermediate students tended to use strategies most often with less complex language tasks. Strategies students used most often tended to require little cognitive processing of the learning materials, and intermediate level students tended to use proportionately more metacognitive strategies than students at a beginning level proficiency. However, overall, both beginning and intermediate level students used more cognitive than metacognitive strategies and beginning level students used more translation than intermediate level students. Both tended to use less cognitively demanding processing strategies. However, overall, both groups of students used more cognitive than metacognitive strategies. Intermediate level students tended to use proportionately more metacognitive strategies than beginning level students.

Research findings reveal that L2 listeners alter their comprehension strategies. They record that when they are faced with less difficult passages, L2 listeners are more able to use top-down strategies. When they deal with the passage beyond their level of proficiency, they revert to the bottom-up strategies. In other words, faced with a more difficult listening task, L2 learners tend to use less cognitively demanding processing strategies (Bacon, 1992; Vogely, 1995). This confirms Murphy's (1987) finding that less-proficient listeners tend to base their comprehension exclusively on text characteristics or on their own background knowledge. Lund (1991) used an authentic-like text in a comparison of listening and reading comprehension of first to third semester German students. He also concluded that less-proficient listeners rely

more heavily on background knowledge than do more proficient listeners. Bacon (1992b) looked at how students alter their comprehension strategies when faced with less difficult and more difficult listening passages. The results revealed that listeners were more able to hypothesize, predict and use schemata with the less difficult passages, and that they were less able to synthesize and restate the information they heard with the more difficult passage. Bacon reported that 'when faced with faster speech and a less salient topic, they responded by retreating into much less cognitively demanding processing strategies' (p. 408). In other words, for the less difficult passage, the subjects tended to use top-down strategies, whereas for the more difficult passage they relied on familiar bottom-up strategies. Vogely's (1995) study of the strategies of eighty-three university students, who registered for first, second, third and fourth-semester Spanish, reported that as the learners gained more experience with the language, the emphasis given to vocabulary diminished. All three groups reported that their most effective strategy was to relate the text to what they already knew about the topic, which is considered a cognitively demanding task. The second most effective strategy the subjects reported using was to focus vocabulary, which is not considered a cognitively demanding task. This finding corresponds with Bacon's (1992b) study in which the subjects, when faced with a more difficult listening comprehension task, resorted to less cognitively demanding processing strategies. It is therefore suggested that the higher level information is more difficult to get across and requires a greater amount of cognitive effort or attention. This is perhaps where L2 learners need help with their strategy training. Their advances in listening comprehension can be achieved by using more cognitively demanding strategies instead of reverting to less cognitively demanding ones when challenged with more difficult listening tasks.

2.3 Approaches to the listening process

The factors and strategies that are considered critical for foreign language listening comprehension have been discussed in the previous sections, 2.1 and 2.2. To further

explore the difficulties of learners' interpretative tasks, it is extremely important to examine the internal processes of listening comprehension. Cohen and Hosenfeld (1981) first urged researchers to collect process-oriented descriptions of what foreign language readers actually do before deciding what these learners need to learn about reading. The same rationale can be applied to research into foreign language listening comprehension. In other words, in order to design programs that truly meet the needs of learners, sound knowledge about different approaches to listening could influence how educators help learners to comprehend the spoken language.

Although the importance of listening has been recognized since the 1970s, not much research has been undertaken into the process of listening comprehension and even less into listening for understanding (Byrnes, Fink, & Roman, 1982; Nord, 1980). A review of the literature on listening reveals a significant divergence in views about a process, which is rooted in different theoretical assumptions of how we go about deriving meaning from a string of language signs and of those factors that are considered crucial for achieving comprehension. Approaches to listening comprehension which have been the most widely discussed may be grouped as the linguistic approach, sociolinguistic approach and psycholinguistic approach. Each of the three approaches focuses on and emphasizes various aspects of the listening process. The linguistic approach pertains to input-based understanding and grammatical knowledge; the sociolinguistic approach to the practical use of the interactional and communicative aspects of the situations; and the psycholinguistic approach to the internal process of listening interpretation. These three will be elaborated in subsequent sections.

2.3.1 The linguistic approach

The linguistic approach aims at determining how the hearer formulates a structural description of the utterances based on the phonological, lexical, syntactic and semantic aspects of language. In this approach, a description of the linguistic

structure of the utterances is a first indispensable step towards arriving at listening understanding (Byrnes, 1984). This approach is focused on input-based understanding, in which linguistic knowledge, for example, grammatical rules, is consciously brought into the process. When they experience difficulties, learners will search their conscious memory for appropriate rules which are internalized in the mind. The listening process is conceived as a serial processing of linguistic form categories. It is characterized by uni-directional processing from the bottom-up, where each processing stage passes on to the next higher level, for example, starting out recognizing phonological units at the lowest level, then sounds, words, phrases, sentences, etc. The weakness of the approach is that it suggests that the listener performs the listening task in a fixed order independently of contextual constraints (Rost, 1990: 7). However, the theoretical requirement that higher level constraints cannot operate on lower-level processors is not always adhered to in practice, particularly in studies more inclined toward the communicative function of language (Byrnes, 1984).

2.3.2 The sociolinguistic approach

The sociolinguistic approach aims at making sense out of aural input by taking full advantage of content words, contextual clues, and all other sources of knowledge. In practice listeners achieve this by following two working principles—the *reality principle* and the *cooperative principle*. The reality principle is concerned with the ideas being talked about, and the cooperative principle is concerned with the way these ideas are expressed.

According to the reality principle, listeners interpret aural input in the belief that the speaker is referring to a situation or set of ideas they can make sense of. On this basis, listeners can build up an internal model of that situation piece by piece. As a result of the concrete facts which they draw upon from their schematic knowledge, they can set limits on the situation the speaker is likely to have been referring to.

They can parse and interpret the incoming aural linguistic clues in such a way that it adds the next logical piece onto the model they are building. The reality principle is potentially very powerful. It can help listeners rule out ambiguities, fill in misheard words, and avoid other incorrect interpretations.

Listeners use the cooperative principle to interpret aural input in the belief that the speaker is trying to tell them all they need to know and no more, say things that are relevant and use sentences clearly and unambiguously. The consequences of the cooperative principle are potentially far reaching too, for these assumptions help listeners come to the interpretation the speaker intended.

The sociolinguistic approach sees comprehension primarily as the result of an interaction between the speaker and hearer. Comprehension is achieved when the hearer has successfully identified what the speaker intended to communicate with his/her utterances.

From the sociolinguist's view, to achieve communication, it is necessary to share a common semantic field between the speakers and the listeners, especially when the listeners are from different social or cultural backgrounds (Dunkel, 1986; Bremer, et al., 1996). Understanding is always based on the assumption that speaker and listener share some common knowledge and beliefs. In natural conversation, the speaker and listener share a set of agreed-upon rules. Violation of the rules would present an obstacle to comprehension. In the face-to-face interaction situation, the listener might ask the speaker to reiterate or to clarify what he/she has said. For the non-interactive situation, the listener frequently cannot go back and re-process the given information, for example, when listening to a radio broadcast or a formal lecture in the classroom. For listeners who are third parties and do not participate in a conversation but overhear what is being said, it is even more essential that they share a certain amount of knowledge in order to understand the meanings and references of

utterances.

Therefore, listening is viewed not only as a linguistic or a cognitive process, but as a social interaction involving extra-linguistic judgments by the listener, for example, stress, intonation, pause, length, contrastive stress, gestures, relevant objects in the situation, general knowledge of the culture, etc. Emphasis here is on the social meaning, which is socially motivated, socially agreed upon and socially specified. In short, characteristics of a sociolinguistic approach are to focus on content words and contextual clues and the use of the interactional and the communicative aspects of the situation.

2.3.3 The psycholinguistic approach

The psycholinguistic approach points out that although we understand a sequence of spoken words very quickly, there is an extensive amount of unconscious mental activity taking place. The listening processing activities which require attention include discriminating between sounds, parsing or segmenting what is heard into meaningful units, holding idea units in the short-term memory, filling in the missing items, identifying anaphoric terms, finding the referent for these terms, integrating the information from the speaker with the knowledge stored in the schemata of the listener, and making relevant links for the purpose of a listening task. Although some of the processes necessitate small amounts of attention while others require larger amounts, they are all important factors in tackling a piece of listening. A detailed description of psychological decoding will be given below.

When a stream of speech sounds reaches our ears, without conscious thought we start to discriminate between the sounds or categorize them into a sequence of phonemes, the smallest meaningful or contrastive units of speech in a language. These phonemes have slightly differing characteristics of length, duration and frequency which help us discriminate between them. In connected speech, individual

phonemes cannot be isolated. Sounds within the same utterance are affected by co-articulation with other sounds; this is particularly so for sounds immediately next to each other. When we listen to speech, we cannot anticipate hearing clear pronunciations of words since all phonemes change their features depending on the words or phrases they are part of.

For listening comprehension to occur, numerous cognitive tasks must take place in a brief period of time. The listener uses aural cues and linguistic knowledge to identify a logical form, for example, lexical items and syntactic organization, for what is said. He/She first forms a perceptual representation of a lexical item he/she hears and compares or integrates this representation with his/her background knowledge. To illustrate, when the listener takes in what he/she hears, he/she will segment the speech signal into units that are potentially meaningful. For example, the oral expression [itisaiskrim] can be organized into either 'it is ice cream' or 'it is I scream'. When the listener hears, "The police officer found the car that belonged to Katherine.", in order to understand this complex sentence, he/she must segment this sentence into more basic syntactic units: (a) The police officer found the car, and (b) The car belonged to Katherine. Once the patterns that the sounds form have been recognized, they pass into the short-term memory usually in the form of meaningful units. In language processing these units are usually defined syntactically as words, phrases or clauses. When sounds have entered the short-term memory and have been patterned into appropriate syntactic units, they are retained only long enough to be interpreted semantically. As soon as the listener has interpreted the syntactic units, the elements that made them up are removed from the memory in order to make room for incoming sounds. Once the meaning has been extracted, the exact words are forgotten. The message that they convey may or may not pass into long term memory. Thus, "short-term memory by using syntactic rules to chunk incoming linguistic data plays a central role in the extraction of meaning and the potential long-term retention of meaning from spoken language" (Call, 1985: 767) When he/she

listens continuously to speech, he/she must assign structure to the words or sentences as he/she must make sense of the relationships between the ideas in the spoken text. Therefore the listener engages his/her language competence to understand the phonetic, syntactic or semantic characteristics of the message and attempts to construct the basic meaning of the text from the context. Foreign language input is processed in the same way. The difference is that short-term memory for target language words is often overloaded causing words to be forgotten before they can be organized and interpreted. Many studies suggest that measures of short-term memory are good indicators of a student's proficiency in the target language (Byrnes, 1984: 318; Call, 1985: 769).

Listeners are not entirely without guidance in interpreting syntax (Rost, 1989: 86). Listeners have access to prosodic guides to estimating syntactic analyses. Three of the guides are intonation, stress and pause. Speakers often use rising intonation to indicate both 'this is information assumed to be shared' and 'something new is to follow', and they typically use falling intonation at the end of an utterance which contains 'the new information'. Stress is almost always put on items considered to be 'new' or 'very important' in an utterance. Pauses typically are used to separate 'idea units'.

An examination of most spoken discourse and conversation quite often reveals that most of the message is not explicitly stated—it is ellipted. Speakers often use ellipsis in order to make communication more efficient; they provide only the necessary information just enough for the listener to understand. The listener needs to fill in the appropriate missing words and relationships to clarify the ambiguity and implicitness. The full lexical items and relational links between items in a discourse are often left out, usually because the listener is assumed to be able to reconstruct them from the context. For example, in the following conversation, it is not possible to identify explicit propositions in B's responses:

A: Do you work full-time?

B: No, only Mondays and Fridays.

A: Do you live at home?

B: No, I rent a room from Mrs. White.

Problems of understanding will arise when the listener is unable to fill in the appropriate missing words and relationships.

Apart from the cognitive task of adding the missing elements, finding the identical references for the lexical items between the speakers and the listeners may be another problem in understanding. This could occur more often in cross-cultural communication. In addition, identifying the referent for anaphoric terms is another common source of difficulty for listeners—an anaphoric term is a word used as a substitute for a preceding word or group of words. Sentences such as the following are confusing to many listeners.

A: Where in Taiwan (did you live)?

B: Taipei.

A: A flat or a house?

B: Oh, in the University's dormitory.

A: You have a kitchen?

B: Yeah, a kind of shared kitchen?

A: Oh, an electric stove, or?

B: No, an old style of gas stove?

A: Well, how about the one you have now?

B: ....

Up to this point, B has the problem of interpreting what 'the one' is referring to. From the preceding conversation, the intended topic could be 'stove' or 'kitchen' or 'apartment' (they had also talked about the car). The listeners can only choose what they feel is the most appropriate meaning from the context whether this is the first or last topic mentioned.

In view of the practical use of the language, each listening situation is somewhat unique and each requires varying amounts of attention. To some point, the listener is required to evaluate and reflect upon the input—this goes to a deeper level of comprehension, demanding more of the listener's intellectual resources. For example, the expression 'I am thirsty' can simply mean that I want a drink but it can be inferred as a request to 'put the kettle on' or 'get me a drink'. Sometimes some aspects of the message require more careful listening than others. For example, in some situations, the listener only needs to pay attention to the surface meaning of words, phrases, and sentences while in other situations he/she needs to focus more on the intended messages of the speaker. The more indirect the input information is, the more cognitively demanding it is for understanding.

In order to make sense of these listening situations, we do engage our memories. We have to retrieve a great deal of relevant knowledge in order to understand everything we hear. Whenever we use our memory to understand a situation, for example, a conversation that we overhear on the bus, we leave a trace of it in our memory system. This trace may be reconstructed in relevant similar situations some time later. Now and then, we create so many new memory traces that it is difficult for us to isolate them. They are already integrated in our long-term memory, and the individual events become blurred. So each time we use our memory to recall, we start by forming a mental representation of an event and end with updating this representation by integrating new information. However, most of us cannot recall exactly what was said, only some words, a topic, an overall idea or some of our affective reactions to the events. In short, as we listen, we must recall what we already know about a situation or topic and interpret the new situation or topic in light of our prior knowledge. Some types of listening situations, such as lectures or a news broadcast, place a greater emphasis on recall while others, such as a short social talk, seem to have less emphasis on recall. In those cases where long passages or oral speech

require retention of many details, such as in the delivery of professional papers, it must be assumed that we have already internalized significant stores of related knowledge that we can readily bring to the situation. In the absence of such knowledge the task of comprehension and recall would simply be overwhelming, even for native speakers (Byrnes, 1984: 320).

Consequently, understanding spoken language is much more than the matching of sound to meaning. Listeners must find relevant links between what is heard and those aspects of the context that might motivate the speaker to make a particular utterance at a particular time. Listeners tend to recall semantic representations of texts they have heard by re-interpreting these representations in the context of a task demand. It is generally acknowledged that not all of the input is available for language processing, and much of the input is 'noise'. People listen for a purpose and it is this purpose that drives the understanding process (Rost, 1990: 7). Sperber and Wilson (1986) contend that listeners pay attention only to information that seems to be relevant to their purposes or needs. According to relevance theory, this orientation ensures that only useful aspects of an item's meaning are accessed. Since an item's meaning is stored as part of complex semantic networks, only those networks which are relevant to a contextual interpretation will be activated.

To sum up, the psycholinguistic approach tries to identify and classify the mental steps of the listener's interpretation of the oral input. Cognitive communicative activity constitutes the essence of language understanding and it goes without saying that such cognitive activity is highly complex.

2.4 The models of listening comprehension

Research has identified two complementary models which characterize the decoding process (Rost, 1994: 94). The first model suggests that in processing oral input, a learner makes use of linguistic knowledge starting from the oral text data itself and

matching it against lower-level frames such as phonological units, sounds, words, phrases, sentences, which then activate increasingly more comprehensive higher-level frames such as semantic ideas, relationships and hierarchies among ideas, and schematic knowledge. This data-driven process is referred to as bottom-up processing. Such a listener favors input-based understanding. As the listener processes a text, he/she will rely heavily on linguistic accuracy or grammatical knowledge which are consciously brought into the process. This model is used to explain how information, initially in the form of phonological signals, is transformed in the listener's memory as it undergoes storage and retrieval conversions. A central feature of this model is that listening is a sequential process initiated by incoming data.

The second model focuses on content words and contextual clues, as well as the use of the interactional and communicative aspects of the situation. A learner makes use of learning strategies which activate a higher-level frame which then searches for the appropriate data to match it. He/She relates the new information to special schemata, for example, background knowledge of the topic or a general knowledge of the culture which enables him/her to anticipate what will occur next, and to predict or infer meaning where a portion of the text might be partially understood. This schema-driven process is called top-down processing. Such a listener goes on listening, even when there are words, phrases, and clauses which he/she does not understand. This model is used to explain how listeners find relevance in situations and texts through activation of expectations and use of selective attention. A central feature of this model is that the 'stages' of the process are overlapping and interdependent (Byrnes, 1984: 327; Flowerdew, 1994: 94). For example, Marslen-Wilson's on-line interactive language processing theory, based on an approach to speech understanding in which the entire range of processing activities are taking place on-line, as the utterance is heard (Marslen-Wilson, Tyler and Seidenberg 1978; Marslen-Wilson and Tyler, 1980:2), claims that the recognition of each word from the beginning of an utterance is directly influenced by the contextual environment in which that word is

occurring. In other words, it is not hierarchically arranged essentially autonomous processors that are at work; rather, there is an interaction between all types of knowledge—phonological, lexical, structural and semantic—where each knowledge source continuously has a two-way access to every other source in the task of analyzing the sensory input. Byrnes (1984: 322) pointed out an important finding from the research on the temporal structure of spoken language understanding carried out by Marslen-Wilsen and Tyler (1980). The interactive character of language comprehension can be observed by eliminating the distinction between lexical meanings and contextual meanings, linguistic or extra-linguistic. The fact is that meaning draws on an unbroken, broad interpretative domain, where both the syntactic and the semantic component have the capacity to convey meaning. In short, this theory emphasizes a convergence of inferences at all levels in which understanding takes place in real time which is a split fraction of a second.

In view of the complexity of the listening task, a few representative models are depicted here. They are categorized into two groups: the Linear model and the Non-linear model.

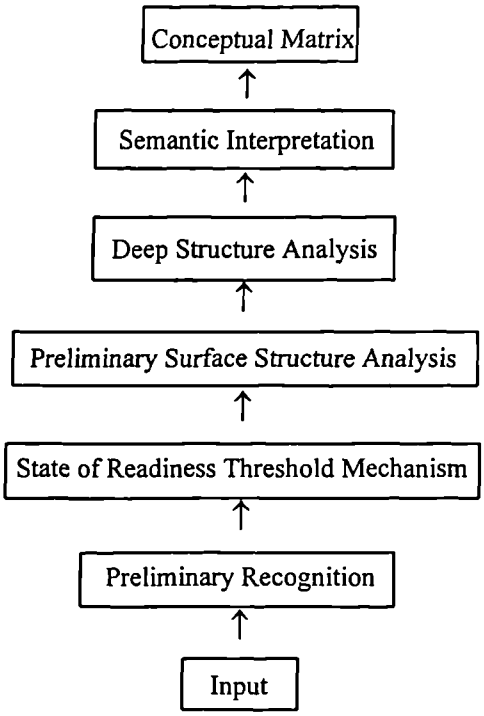
2.4.1 Linear models (sequential models)

Linear models are sequential models, in which the processing steps are presented in a sequential order. The representative examples include (1) Wales and Marshall's model (1966), (2) Clark and Clark's model (1977), (3) Martin's model (1982), and (4) Goss's model (1982).

2.4.1.1 Wales and Marshall's Model: Wales and Marshall's Performance Model was first published in 1966. It is a very early model, which consists of multiple -step processes. Not only is the model abstract and theoretical in that it presupposes the existence of distinct levels of surface structure, deep structure, and semantic interpretation, it also only allows a bottom-up decoding process (Dirven & Oakeshott-

Taylor, 1984: 329). Figure 1 illustrates the listening process as presented in Wales and Marshall's model.

Fig. 1. Wales and Marshall's Listening Model (1966)



2.4.1.2 Clark and Clark's Model: It is a four-step model. Clark and Clark (1977) proposed the model, which includes a psychological description of the verbal understanding process as in Figure 2. The processes are:

(1) Hearers take in the raw speech and retain a phonological representation of it in 'working memory'.

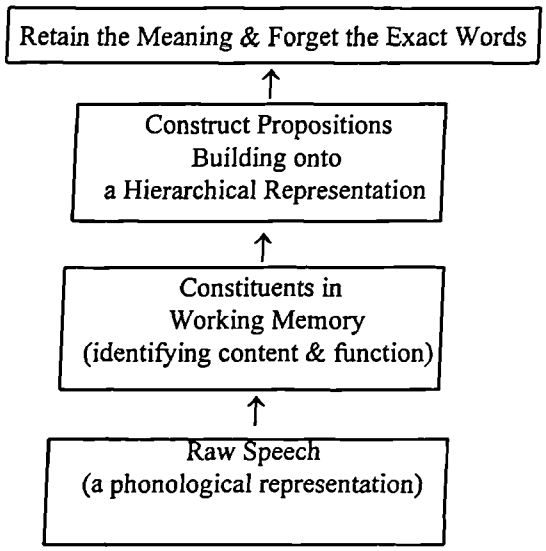
(2) They immediately attempt to organize the phonological representation into constituents, identifying their content and function.

(3) As they identify each constituent, they use it to construct underlying propositions, building continually onto a hierarchical representation of propositions.

(4) Once they have identified the propositions for a constituent, they retain them in working memory and at some point purge memory of the phonological

representation. In doing this, they forget the exact wording and retain the meaning. (p. 49)

Fig. 2. Clark and Clark's Model (1977)



Their main idea is that, in the construction process, listeners take in the raw speech, isolate and identify the constituents of surface structure, and build propositions appropriate to each. Listeners think of constituents as conceptually coherent units. They isolate them soon after taking in speech and hold them in working memory as units. They eliminate them from memory and retain only the reconstructed meaning soon after they have finished interpreting the propositions. It is clear that constituents play a major role in the comprehension of oral input. However, Clark & Clark do not insist that the four steps always occur in a sequential order.

2.4.1.3 Martin's Model: Martin's study (1982) on ESL learners' listening comprehension categorizes the listening process into two groups of strategies: 21 strategies on the word level, and 13 on the idea level. While the former were used to associate meaning with specific words, the latter dealt with the construction of a topic and the association of subsequent meanings to the main idea. She identified the

three processes underlying the listening activity as in Figure 3.

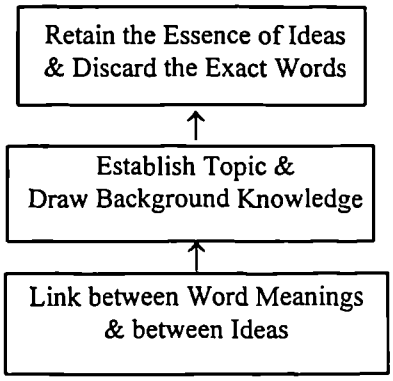
1. Simultaneous interpretation: Listening is not simply collecting isolated words. The connection between word meanings and ideas must take place during the listening activity itself.

2. Topic establishment: Once the concept of the topic is established, the listener can draw from background knowledge and previous experience to fill in gaps in comprehension, to anticipate words or ideas, and to make judgments about the importance of meanings.

3. Memory paraphrase: A listener's memory does not store the exact words of the aural input, but the essence of the idea can be recalled in paraphrase.

This process is similar to Clark and Clark's model with the exception that her first step is the combination of the first three steps in Clark and Clark's model and her second step includes using background knowledge. It implies that Clark and Clark's model is applicable even to the listening strategies adopted by ESL listeners in understanding the aural input.

Fig. 3. Martin's Model (1982)

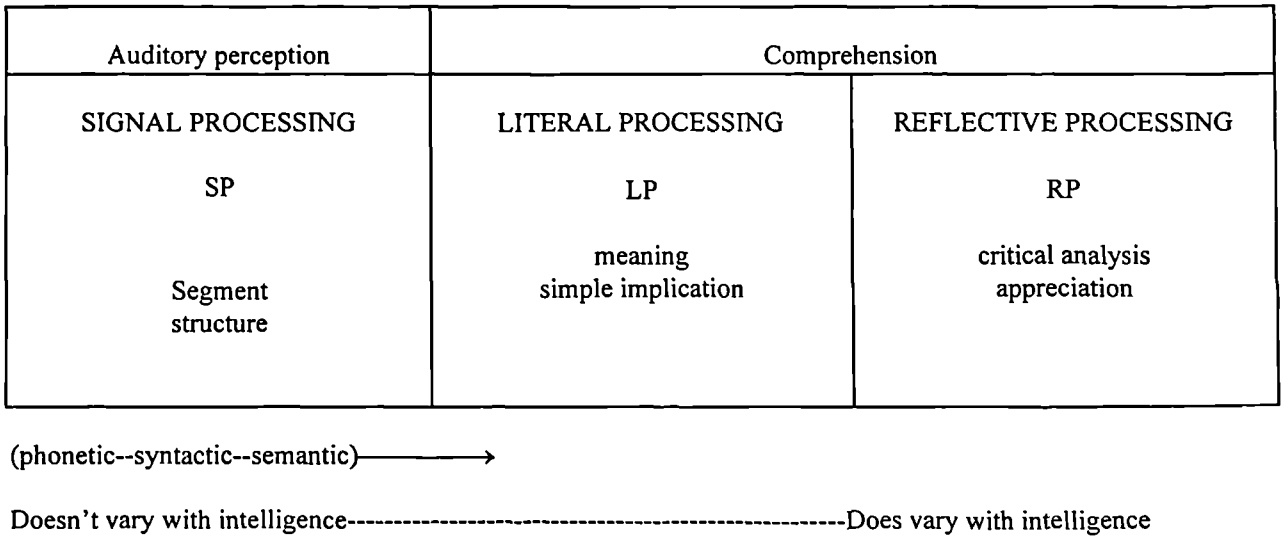


2.4.1.4 Goss' Model

Goss (1982) looked at listening as an act of human information processing and divided auditory perception and message comprehension into three parts: signal processing (SP), literal processing (LP), and reflective processing (RP). Signal

processing is equated with auditory perception while message comprehension is subdivided into literal processing and reflective processing. At the earliest stage of the language processing task, listeners engage their language competence to understand the phonetic, syntactic, and semantic characteristics. Literal processing is the next step. It refers to the initial assignment of meaning to the message parts by the listeners. This phase of comprehension is primarily referential, in that the listeners are attempting to understand the basic meaning of the utterance. Once the listeners have a basic understanding of the message, they can respond more reflectively, thus beginning reflective processing. This level of processing leads to critical listening and appreciative listening (Lundsteen, 1971). In short, listening is seen as a three part perception and comprehension process that is identified as signal processing, literal processing and reflective processing. Although presented in a linear fashion, the listening process, especially for a well learned message, is so rapid that linearity may be difficult to observe. Figure 4 illustrates the listening process as presented in Goss' model.

Fig. 4. Goss' Model (1982)



2.4.2 Non-linear models (interactive models)

Non-linear models are interactive models, in which all the processing steps can occur interactively or simultaneously. The representative examples include (1) Nagle and Sanders' model (1986), (2) O'Malley, Chamot, and Kupper's model (1989), (3) Anderson and Lynch's model (1988) and (4) Rost's model (1990).

2.4.2.1 Nagle and Sanders' Model: Nagle and Sanders (1986) devised a model called 'A Model of Listening Comprehension Processing in the Adult Language Learner', which attempts to synthesize the theoretical positions held by second language researchers and psychologists, except in the extreme case of Krashen's view of linguistic memory (1982: 18). This model emphasized that listening comprehension is not a linear process, but a recursive activity in which the listener moves back and forth in a process of building meaning (see Figure 5). In order to understand the processes incorporated in this model, they are presented in a linear fashion as follows.

(1) Input heard by the listener is briefly held (for about one second) in the sensory register (echoic memory, Call, 1985) during the perceptual processing phase. Here the listener segments the stream of sound into words or other meaningful units which are recognized and transferred to the short term memory (STM), whose capacity is limited to "about seven units, plus or minus two" (Call, p. 767). The units which are understood (called intake) are then interpreted by relating them to other information in the long term memory (LTM) and then quickly dismissed in order to accommodate the new intake. At this point, two factors may impede the processing of new information: *trace decay* (fading of the sensory input) and *interference* from the newly arriving input. This is the parsing phase of listening.

(2) The ability to overcome trace decay and interference will depend on whether the listener uses controlled or automatic processing to link what

he/she has heard to knowledge in the LTM (Shiffrin and Schneider, 1977). Controlled processing necessitates more conscious attention to the previously learned patterns stored in the LTM while automatic processing executes the rules underlying an utterance unconsciously as a result of sufficient practice. Therefore due to the limited processing capacity of the STM, the listener must be able to process larger chunks of information in order to avoid cognitive overload. Automatic processing involves activation of action sequences (learned through practice) stored in nodes in the LTM. The more information a listener can process without conscious attention, the more room is left in the STM for more complex tasks. On the other hand, controlled processing requires more attention from the listener to the incoming input, taking up the precious processing capacity of the STM. This mode of processing occurs when, for example, a listener confronts unknown words or must adjust to a different accent.

(3) In contrast to the limited capacity and time span of the STM, the LTM has a much greater storage capacity and retains knowledge for a much longer time. The LTM has three knowledge stores: explicit linguistic knowledge, implicit linguistic knowledge and other knowledge, e.g., world knowledge.

(4) Attention is the mental energy a learner allocates to processing a given language task. The kind of attention allocated will depend on the complexity of the input. The more familiar the material, the more automatic processing takes place, requiring less attention. Conversely, the less familiar the material, the more controlled processing will happen, requiring more attention. Attention makes up for the lack of automatic processing by initiating controlled processing and greater focus on form to segment the input into smaller units of meaning.

(5) Arousal compels learners to pay greater attention to language input. It is triggered by factors such as degree of interest in the material context and

levels of anxiety.

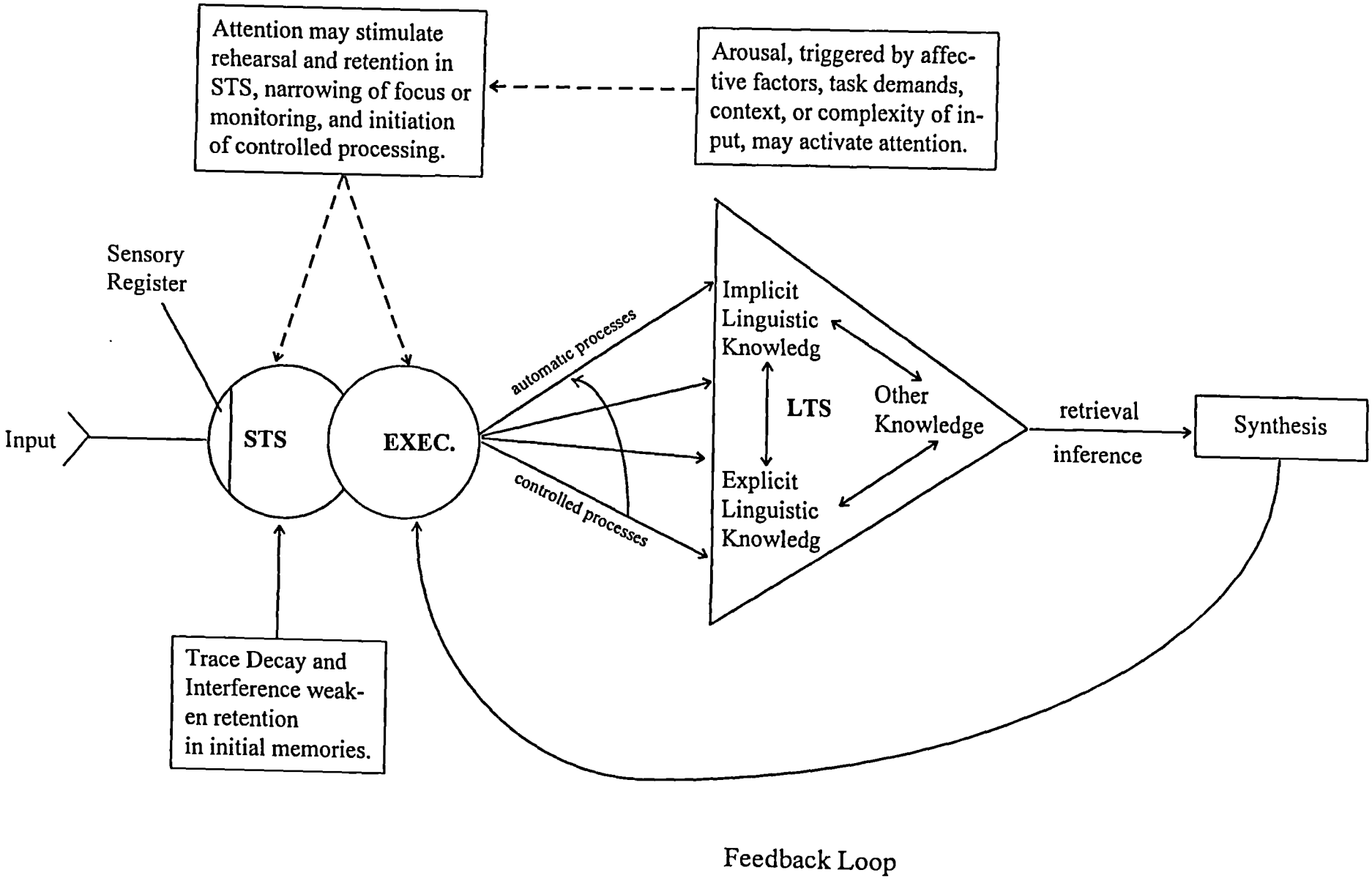
(6) An executive decision maker oversees the processing operations and controls the flow of information, making decisions regarding the activation and direction of attention, and the degree to which the short or long term memory will be accessed. Decisions are influenced by factors such as difficulty of the task, familiarity of content, time constraints and affective factors as described in #5 above.

(7) The resulting meaning is a synthesis of what was comprehended—combined with inferencing on what was not comprehended. This is not the end of the process, however.

(8) A feedback loop denotes the recursiveness of the process. The resulting meaning is fed back to the executive for further processing or for storage in the LTM.

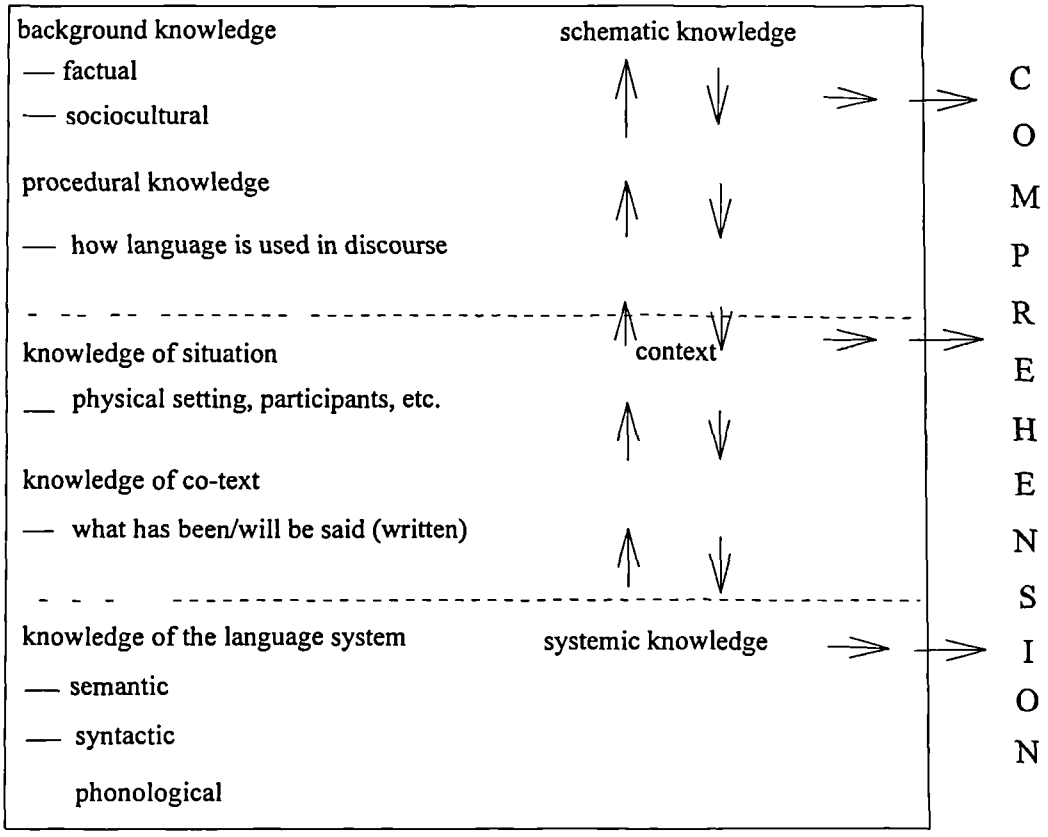
Nagle and Sanders state that this model is intended to represent only comprehension, but it cannot really be separated from learning. It is concluded that comprehension and learning are interrelated, interdependent, but distinctively cognitive phenomena. As a result of their interrelationship, however, theoretical learning constructs such as the Monitor and the Affective Filter derive some support, at least as broad generalizations, from psychological investigations of comprehension processes. In addition, the gradual progress from controlled to automatic processing underlies both comprehension and learning and supports the traditional view of teachers that practice leads to learning (Nagle & Sanders , 1986: 20).

Fig. 5. Nagle and Sanders' Model of Listening Comprehension Processing in the Adult Language Learner (1986)



2.4.2.2 Anderson and Lynch's Model: Anderson and Lynch (1988) further developed a model consisting of both top-down and bottom-up processing as in Figure 6. This model sketches two aspects of current views on listening comprehension. One highlights the fact that the listening process draws on multiple sources of information—schematic knowledge and context having at least as important a role as knowledge of the L2 system. The other focusing on the direction of the arrows leading to "comprehension" underlines the potential co-occurrence of top-down, expectation-driven processing and bottom-up, data-driven processing.

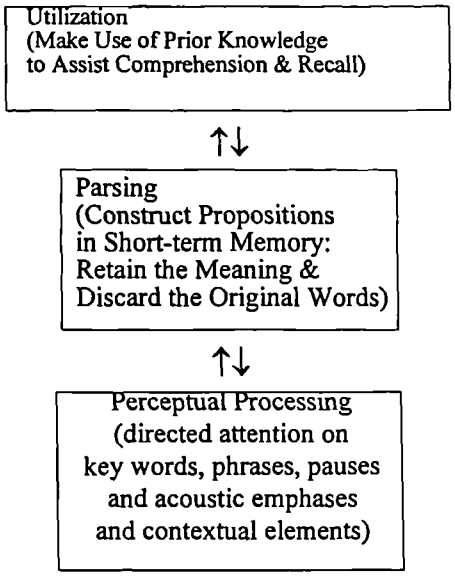
Fig. 6. Anderson and Lynch' Model (1988)
Information sources in comprehension (Anderson and Lynch 1988:13)



2.4.2.3 O'Malley, Chamot, and Kupper's Model: In a study on listening comprehension strategies in L2 acquisition, O'Malley, Chamot, and Kupper (1989) aimed to discover the mental processes L2 learners used while listening to academic

texts and the strategies they used in different phases of comprehension. Findings indicated that the mental processes students used in listening comprehension included three phases of the comprehension process: Firstly, *perceptual processing*, maintaining attention to the aural text, secondly, *parsing*, chunking or segmenting the information based on cues or on structural characteristics to develop a meaningful representation that is stored in short-term memory, and thirdly, *utilization*, drawing upon existing knowledge in long-term memory through spreading activation as in Figure 7. These three processes overlap with and are consistent with the listening comprehension processes identified by Clark and Clark (1977) and Martin (1982). This indicates that Clark and Clark's model is even applicable to listening to academic texts. However, O'Malley, Chamot, and others point out that the processes may flow one into the other, recycle and may be modified by the possible combination of using both top-down and bottom-up processing strategies (O'Malley, et al., 1989: 434).

Fig. 7. O'Malley, Chamot, and Kupper' Model (1989)



2.4.2.4 Rost's Model: This is a three-level non-linear model. In *Listening in Language Learning*, Rost (1990) approaches listening from the point of view of auditory perception and from a socio-pragmatic perspective. He says that language

is a form of social action with an emphasis on the interactive nature of language rather than its role as representing meaning.

Rost provided the following inferential processes which are strategies learners use for editing discourse.

1. Estimate the sense of lexical references
2. Supply case-relational links within propositions
3. Construct a base meaning
4. Supply a plausible intention for the speaker

More explanations for these processes are given below:

1. Estimate the sense of lexical references

According to the psychologist Elaine Rosch (1975), whenever we encounter words, we evoke mental images of these words. When we encounter an object, we refer to a set of stored knowledge about similar objects. We do this in order to identify the specific object we are seeing. When we encounter a word in speech, we perform the same kind of search. In order to recognize a word, we have to engage three processes simultaneously, find the most probable 'candidate word' among several possibilities; estimate the best meaning of the word in the context and find the 'reference' for the speaker's words. Non-understanding or misunderstanding may occur when listeners do not share the same sense as the speakers or when they fail to relate a co-referring item to its antecedent, or when they choose the wrong real-world referent. Native listeners can usually identify the source of failure to understand, but foreign listeners cannot, even though they know the existence of the problems.

2. Supply case-relational links within propositions

The links between lexical items in a discourse text can be termed the case relations between items. The semantic relations between items in discourse, whether made explicit by the speaker or inferred by the listener, are typically referred to as

propositions. Propositional content is constructed by the listener's inferences based on the text, rather than entirely recovered from formal features of the lexical items or the grammar of the utterance. It is common to find that the case-relational links are not explicit. One of the listener's interpretive tasks in discourse involves finding case-relational links for lexical items. Difficulties in making case-relational inferences are even common for L1 listeners, especially for listeners in the role of bystander or overhearer.

3. Construct a base meaning

In order to make sense of the dialogue, the hearer has to construct a general base meaning or a set of unified concepts which provides a framework for the content of the text. When the listener can retrieve the appropriate framework, the text begins to make sense. Four aspects of this related complex notion are delineated as follows.

a. Employ cultural schemata

Links between utterances are often not apparent at the level of form, but are implied by the speaker and inferred by the listener via underlying propositions. Participants in a successful conversation know what the salient underlying propositions are and can utilize them as an indirect means of achieving understanding. They make use of a familiar setting or context clues to define semantic meanings for known words as well as unknown words in the text. An unsuccessful conversation often occurs when one of the participants is not able to identify cohesive underlying propositions. This type of misunderstanding is particularly noticeable in cross-cultural encounters.

b. Fill in schematic slots

A schema is an organizational system for the topical knowledge that is needed in order to make inferences. We have countless schemas accessible to us in our memory. For each schema we have stereotypical knowledge in our

memory based on our experience and imagination, which guides us to fill in the slots in our memory. Once certain slots in a schema are filled with text information, others become easier to fill.

c: Fill in supporting data for claims

According to Stephen Toulmin (1983), much of the reasoning we do during listening comprehension can be explained in terms of claims and supporting grounds. In everyday reasoning, we must infer the grounds once we understand a claim. Claims are the assertions that the speaker wishes us to accept. Grounds are the supporting facts or ideas which supposedly lead us to accept the claim.

d. Use genres to generate expectations

As the listener identifies a particular genre, for example, lecture, news-report, social talk, joke, commercial advertisements, etc., schematic slots are suggested. By using the principle of analogy, the listener is more likely to arrive at an acceptable understanding of the text. The listener's task in understanding a speaker will involve integrating knowledge from schemata and the propositional information available.

4. Supply a plausible intention for the speaker

One critical listening skill in conversation is identifying the speaker's intentions. Understanding conversation, either as a participant or a non-participant, depends on many subtle abilities. The principle ability is to make inference about the speaker's intentions during the conversation. Often, of course, we cannot know for sure, since much information in a discourse, particularly the intentions of the speaker, cannot be recovered directly from the language used. Sometimes, even experienced listeners will regularly experience an understanding problem and not all understanding

problems can be resolved solely through reliance on conventional linguistic knowledge. However, speech act theory assumes that the speaker is trying to accomplish something at a strategic level by speaking. Using the assumption that the speaker is trying to achieve an interactive effect, the listener can then consider a plausible intention for the utterance. In everyday conversation, it is the mutual construction or co-operation of the speaker and hearer that serves to create conversational coherence.

Perception of a speaker's intention depends on the good use of verbal, vocal and visual features. Verbal cues can often be detected for the correct interpretation of the speaker's intention through the listener's use of pragmatic knowledge. By conversational maxims, which are clearly cultural-specific, although some universal principle may hold, and culturally transmitted, the listener is more likely to be able to recover the intention of the speaker.

As listeners, we can search for non-verbal cues to guide our understanding. They include visual cues, such as, gestures, facial expressions, body posture, etc. and vocal cues, such as stress, pitch, intonation or timing, which also can signal prominent words in an utterance and convey the key ideas. The influence of vocal or visual cues in verbal communication can often be most easily detected in cases in which vocal or visual signals seem to contradict the verbal signals.

To conclude, Rost perceived that the semantic interpretation of the phonological input occurs at three levels—the lexical/propositional level, the base/schematic level and the interpersonal/interactive context level. They are so intimately interwoven that one does not make sense without the other. Figure 8 illustrates Rost's sketch of a model of the listening inferential process which accounts for the notions of construction of lexical/propositional meaning, base meaning, and relevance. It is a model integrating all the different approaches reviewed above. It is an approach which has

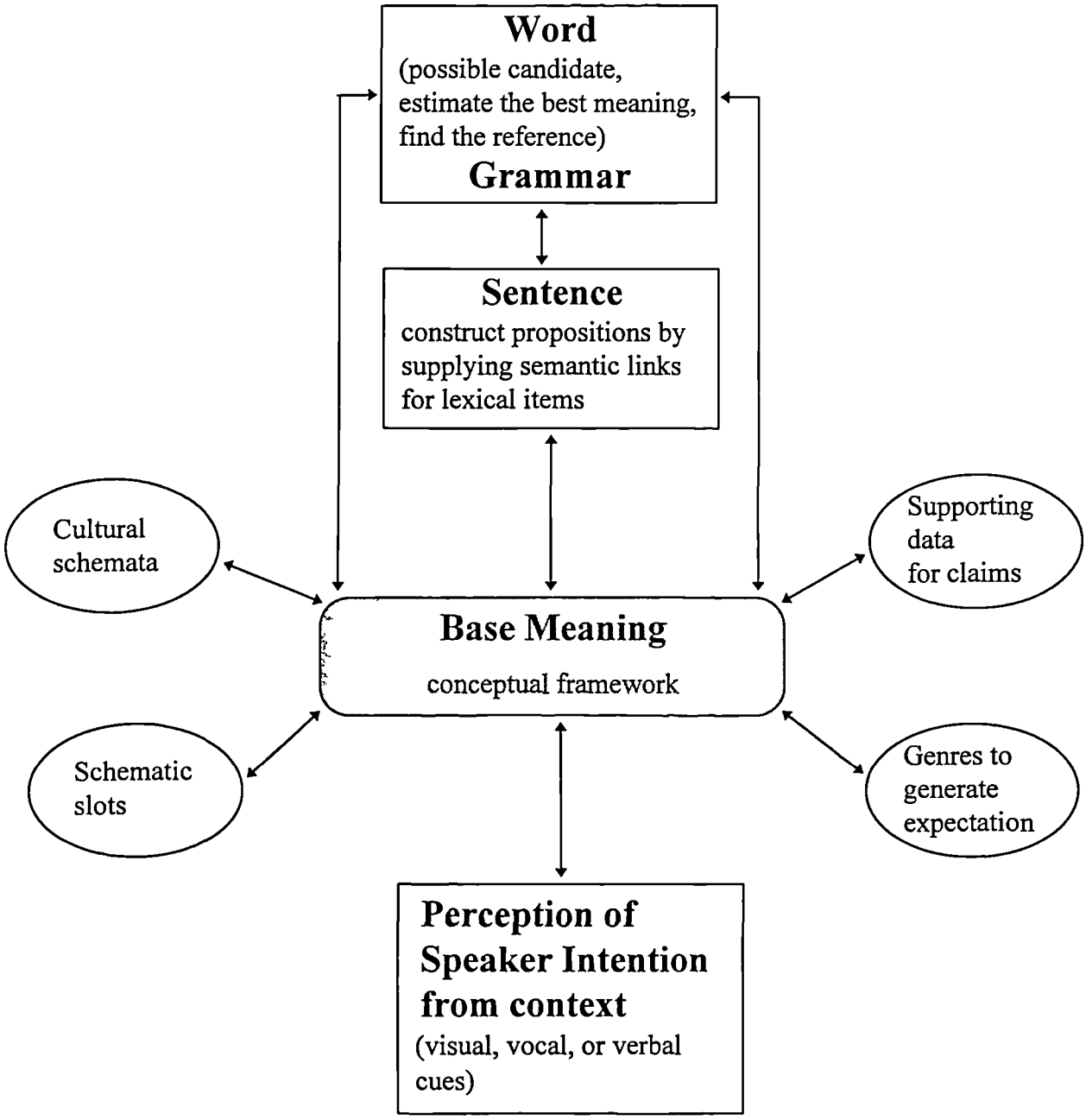
been well thought out from three perspectives—linguistic, cognitive and non-linguistic.

Fig. 8. Rost's Model of Listening Comprehension of an Utterance (1990)

Rost (1990) perceived that the semantic interpretation of the phonological input occurs at three levels—the lexical/propositional level, the base/schematic level, and the interpersonal/interactive context level. They are so intimately interwoven that one does not make sense without the other.

A listener understanding of speaker utterance (X) is derived from converging interpretations of (i), (ii), (iii) as follows:
(i) an interpretation of the propositional meaning of (x)
(ii) an interpretation of the base meaning of the text containing (x)
(iii) an interpretation of the pragmatic context which might have motivated the speaker to utter (x)

Fig. 8. Rost's Model (1990)



2.5 About the present research

The studies reviewed so far clearly demonstrate the important and the positive influence of factors, such as, semantic and syntactic cues, the speech rate, repetition, visuals, vocals, or contextual support, schematic knowledge, inference, or intelligence and of strategies, such as, linguistic, cognitive, or extra-linguistic strategies. They also demonstrate different theoretical views explaining how learners approach the aural message when they go about arriving at meaning from a stream of speech. The linguistic approach, for example, suggests that teachers should help learners build up their sounds, words, phrases, sentences, texts and discourse from the bottom-up, step by step. When they operate the input data, the linguistic rules, which are encoded in their mind, are consciously brought into the process. The linguistic approach places a great deal of emphasis on the construction of a linguistic structure; it does not address the issue of what learners do with the input and what actually happens to the input or what learners do with that portion of the input that they need.

The psycholinguistic approach explores the cognitive processes that explain listening. Its fundamental reasoning is that listening comprehension is an active and conscious process in which the listener constructs meaning by using cues from contextual information and from schema-based knowledge. It suggests that teachers can help learners acquire a variety of strategies to fulfill the listening interpretation requirements. However, it focuses exclusively on the process of interpretation in the mind of the hearer and ignores the social interaction between the speaker and hearer.

The sociolinguistic approach emphasizes the importance of understanding in listening comprehension. Every act of understanding is active: the listener needs to take an active part in interpreting the speaker's message and constructing a contextually relevant sense. It suggests that teachers not only help students pay attention to the effects of the factors going on in their heads such as, memorizing words or grammatical rules, and the strategies activating all sorts of knowledge to fulfill the

listening interpretation requirements, but also help students with the operation of non-linguistic features, social rules, the speech act or the implied meaning in the text.

Three implications from the results of the review are offered (1) Listening is an active and complex problem-solving process. Factors, strategies, approaches, or models discussed here are conducive to the achievement of listening comprehension. (2) The listening strategies are teachable—in order to listen better, EFL learners need to be directed to apply effective strategies to process the input information. (3) For a fuller understanding of listening comprehension, more knowledge about how learners in an EFL context make sense of the oral input enhances identifying the decoding problems encountered by the L2 learners.

Therefore, my study has focused the investigation into three areas. These are firstly factors contributing to the understanding of spoken language, secondly the listening strategies of Chinese learners of English in an EFL context, and finally the formulation of a model of listening strategies and processes explaining how Chinese EFL learners make sense of English oral input. This model not only identifies the factors or strategies which contribute to understanding spoken English but also computes their relative weight in the actual listening process. It is hoped that these findings not only help to clarify the interpretative processes of Chinese EFL students but also enable EFL teachers to target their teaching methods.

Chapter 3 Methodology

This chapter describes the research design and procedures used in this study to investigate the contribution of various factors and strategies in listening comprehension, and the establishment of a model that explains how Chinese EFL learners make sense of conversations among native English speakers. Discussion of details will include such aspects as research subjects, research settings, instruments, research procedures, as well as the method of scoring.

3.1 An overview of the research design

This study attempts, via a quantitative approach, to identify the factors and listening strategies influencing aural comprehension of Taiwan EFL students. Fifteen university students were chosen as the research subjects (see Section 3.2). They were asked to fill out a Likert-scale attitude questionnaire prior to a series of English proficiency assessment tests in listening comprehension. Their listening comprehension was assessed with a series of specially designed audio-visual tests of increasing difficulty. Moreover, written protocol recall was used to examine their levels of listening comprehension. Lastly the subjects were interviewed on an one-to-one basis to elicit the underlying strategies they used in interpreting the passages.

These data were collected in order to allow the present researcher to analyze the window of time when memory associations were being formed in language processing. In contrast to the Western theoretical consideration, a three-level non-linear model was proposed to explain EFL acquisition that is more consistent to Taiwan's socio-cultural environment. Finally, a multiple regression was performed to check if the proposed model fit the data collected.

3.2 Research subjects

A total of 15 freshmen were chosen to participate in this study. The procedure regarding their selection will be covered in Section 3.4. Their majors were either in

Civil Engineering or in Computer and Information Engineering. They all grew up in Taiwan and received their education there. Since they scored within the same band in the National Taiwan Universities/Colleges Entrance Exam, they could be considered to possess similar knowledge background or even similar mental abilities. They have good first-language listening and reading skills. In addition, based on their medical records in the University Health Clinic, they have normal hearing.

Out of the fifteen participants, twelve of them demonstrated an excellent command of vocabulary and grammar as assessed by the appropriate sections in the Michigan English Placement Test (MEPT). For the following reasons they were the centre of attention in this study.

(1) Traditionally, EFL instruction in Taiwan focuses on teaching vocabulary and grammar. Learners must devote much of their effort to memorizing vocabulary and grammatical rules. In particular, one of the main criteria used to evaluate their proficiency in English depends on their mastery of vocabulary and grammar.

(2) There exists an implicit assumption that as long as a learner has demonstrated adequate mastery of vocabulary and grammar, he/she should have little difficulty in transferring his/her knowledge to comprehend both spoken English and actual face-to-face interactions. Thus students with a good command of vocabulary and grammar were studied in detail in order to verify the above assumption.

(3) Another reason for limiting the attention to the twelve students is out of practical consideration. The intention is to study in detail the rich differences in listening comprehension among various learners, thus the number of subjects is necessarily restricted. However, the task would be too laborious if too many subjects were included. Hence in the present exploratory study on Chinese EFL students, attention is limited to these 12 students, in the belief that they will reflect numerous differences in listening comprehension owing to their individual differences. We can then carry out further research on a larger sample or other proficiency levels of EFL learners or other culture groups of EFL learners in a similar environment.

(4) Finally, it is emphasized that the background of this group of subjects is quite typical among university students in Taiwan who are not English majors. They dwell in a non-English speaking environment and have little opportunity for contact with native English speakers. Therefore, this study differs sharply from most of the existing studies which have used students who are studying in an English-speaking country as their research study subjects. In addition, for comparison purposes, the three students with the worst scores on the vocabulary and grammar sections in the MEPT were also included.

3.3 Research settings

The experiment was conducted in two different settings: the first one in the language lab at the Chung Yuan Christian University for better pace control, and the other in a film preview room to allow for self-pace.

(1) The language lab (Fig. 9)

All the pace-controlled tests were conducted in the language lab. These included the standardized Michigan English Placement Test and the first two sessions in the listening comprehension tests (see Section 3.4 for details). The teacher sat in the control room while the students attended to their own carrels. Each carrel is equipped with a panel board with multi-function buttons, a recording machine and a headphone.

(2) A film preview room (Fig. 10)

The room is located in the main office of the Language Centre of the University. It is a room for English teachers to preview their teaching materials. Installed there is a 27" monitor TV set, a VCR, and a tape recorder. This room was used to view videos in the self-paced tests. Prior to the experiment, the subject was shown how to operate the machines. In order to avoid any distraction, each subject was left alone in the film preview room for data collection while the researcher stayed in the main

office (Nolasco & Authur, 1987: 23). As it is a self-paced test, the subject had high locus of control of the timing of the test. He/she had total freedom in deciding how many times he/she wanted to repeat listening to or watching the test materials. Such a free or relaxing environment would encourage more awareness in the process of interpreting oral input. After finishing, the subject was asked to record the number of times he/she had listened to the tapes or watched the videos, and how many times it took him/her to comprehend each segment.

Fig. 9. The Language Lab Setting

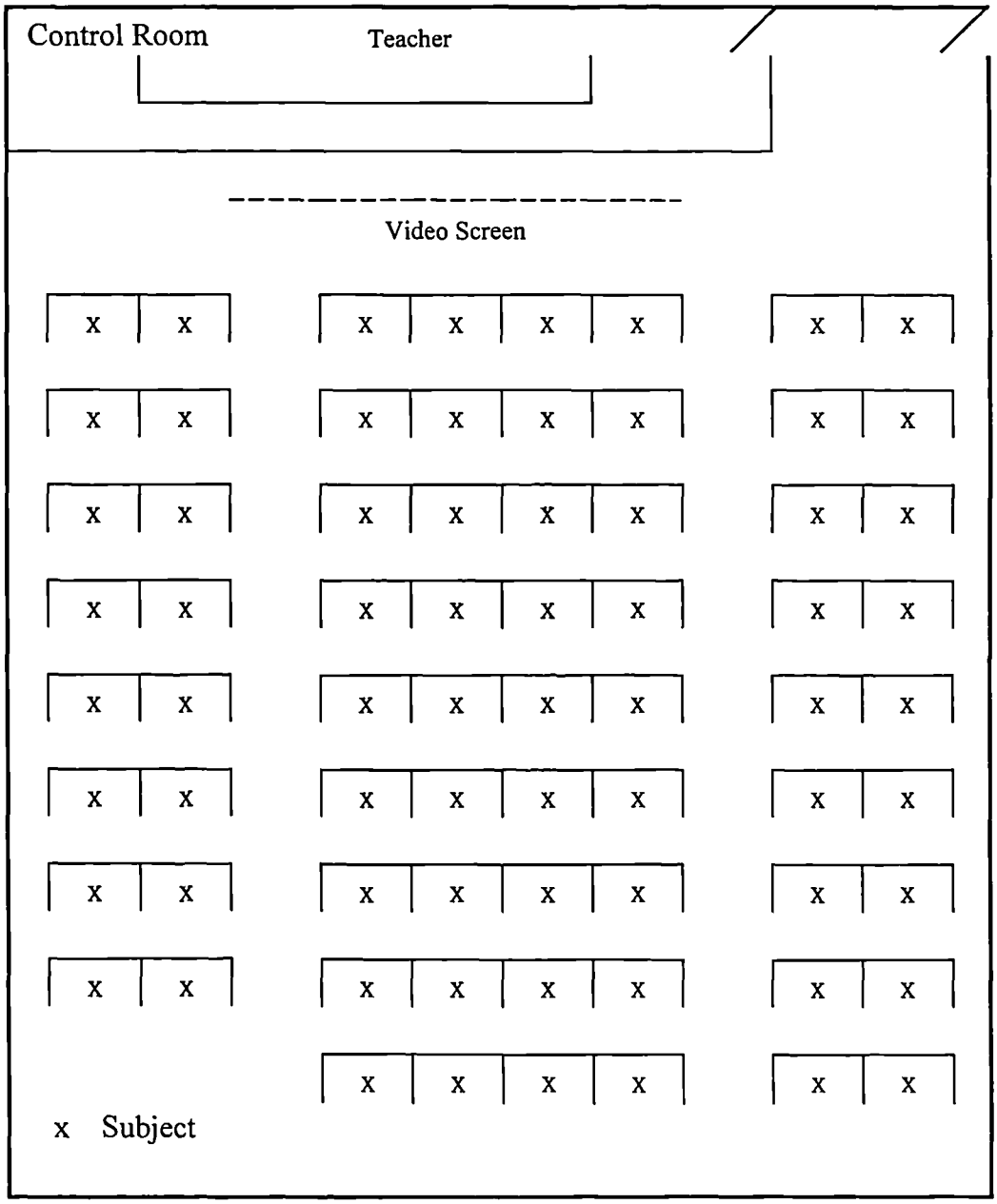
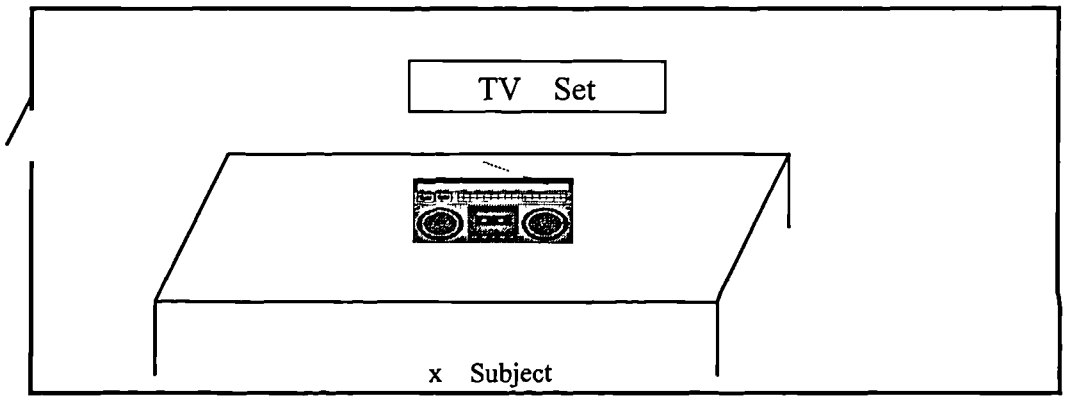


Fig. 10. Film Previiew Room



3.4 Procedures

This study was conducted in the Language Centre at the Chung Yuan Christian University in Taiwan during the Spring semester of the 1994 academic year. The screening procedures for research subjects were as follows. First, two freshman classes, consisting of a total of 125 students, were administered the Michigan English Placement Test (MEPT) in February 1995. In order to motivate the students to do well in the MEPT test, they were informed of the importance of their contribution and the benefits of participating in the research prior to taking the test. With reference to the criterion set by the English Language Institute of the University of Michigan, a total score within the 51-60 range would indicate a highly advanced level in grammar and vocabulary. Accordingly, thirteen examinees satisfied this criterion and were thus considered to be included in this research. However, two of these examinees did not report for follow-up tests while another examinee with a score of 50 volunteered for the study. As a result, twelve high-scoring students ended up participating in the study. Meanwhile, the three lowest scoring students were also included in this research for comparison purposes. Of the 15 final participants, 14 of them were male. This is in conformity to the gender status in the College of Engineering of Chung Yuan Christian University where the ratio of male students to

female is 9.6 to 1.

All the participants were then asked to fill out a Likert-scaled English learning attitude questionnaire. Afterwards, they were assessed by six specially chosen and designed audio-visual tests. The scoring of these tests were based on the written recall protocols produced by the subjects. More details concerning the arrangement of the above-mentioned tests are supplemented below.

All fifteen students were scheduled to take the recall protocols in the Language Lab twice (see Fig. 9). In the first round, they were required to listen to three different segments of audio tapes (denoted by A1, A2 and A3). The second round was conducted two weeks later, when they were asked to view three different segments of video tapes (denoted by V1, V2 and V3). Prior to the assessment, the researcher gave instructions for taking the tests in Chinese. The following represents a summary of these instructions.

1. *They need to listen very carefully.*
2. *They need to write down what they understand.*
3. *They need to write down as much as they can remember in detail.*
4. *They can answer either in English or in Chinese.*

After they had finished listening to or watching each segment, they were asked to write down their recalls in blue ink. Then they were asked to listen or watch the same tapes for a second time. Upon finishing, they were asked to add new ideas that they had missed or to modify those ideas that they had misunderstood in the first draft. The supplementary or corrected information were written in red ink.

All fifteen students were also individually scheduled by appointment to take the recall protocols, with the same six segments of testing materials (A1, A2, A3, V1, V2, & V3) in a film preview room (see Fig. 10). There, they were given the same instructions,

yet they could operate the tape recorder or VCR by themselves. Hence they could listen to or watch the materials as many times as they liked, but they were asked to record the exact number of times they referred back to each segment. They were also asked to add new ideas that they had missed or to modify ideas that they had misunderstood to the copy of the recall writing which they had previously produced. This time it was written in green ink. The difference in ink color in recall writings is an important indicator identifying the inference-making processes of the listeners.

To avoid interruptions or disturbance, the examinee was left alone in the film preview room until he/she finished with recall writing (Nolasco & Authur, 1987: 23). Then he/she signalled to the researcher to come in to begin with the one-to-one interview. Each student went through an informal interview process twice. The first interview was given immediately after he/she had finished the protocol recalls with A1, A2, and A3 while the second interview was after the protocol recalls with V1, V2, and V3. All interviews were tape-recorded.

3.5 The research tools

As mentioned in Section 3.4, the data collection was conducted by administering the MEPT, a Likert-scale attitude questionnaire, recall protocols from listening to 3 audio tapes and watching 3 audio tapes, as well as one-to-one interviews with the participants to identify the strategies and processes in performing listening tasks. The following paragraphs describe each data collection instrument or technique in detail.

3.5.1 The Michigan English Placement Test

The Michigan English Placement Test (MEPT) is one of the ELI-UM Test Publications (English Language Institute, the University of Michigan), and has frequently been used in English instructional programs in the U.S. and Canada. The reasons for choosing the MEPT for this study are fourfold. Firstly, it is designed to

determine whether EFL/ESL students are at elementary, intermediate, or advanced language proficiency levels. Secondly, it is designed for optimal discrimination at the intermediate proficiency level, while still matching with the English ability level of university freshmen, non-English major students, in Taiwan. Thirdly, it has high internal consistency reliability coefficients that ranged from 0.89 to 0.92 (the University of Michigan, English Language Institute, 1994). Lastly MEPT is considered a secure test for the time being in Taiwan; that is to say, not easy to procure as is TOEFL (Test of English as a Foreign Language), which can be found in any bookstore or Cram School in Taiwan.

There are thirty questions in the grammar section of the MEPT. Each grammar question represents a short dialogue between two people: the first part of the dialogue evokes a situation and the second presents a response appropriate to that situation. Part of the response in each dialogue has been omitted and the student is to choose, from the four choices offered, the one word or phrase that most appropriately completes the conversation. There are another thirty questions in the vocabulary section. In each question an incomplete sentence is given and the student must choose, from the four choices available, the one word that most appropriately completes the sentence. The words selected for inclusion are commonly and frequently used, having been selected from the 2500 most-frequently-used words in the general word count of Thorndike and Lorge, *The Teacher's Word Book of 30,000 Words* (Thorndike & Lorge, 1944). The maximum score possible is 30 points in both the grammar and vocabulary section.

3.5.2 A Likert-scale attitude questionnaire (see Appendix 1):

All fifteen sampled students were asked to fill out an attitude questionnaire. This survey was intended to find out their attitude toward English learning and the amount of effort they had to put in to improve their English language as well as to expand their socio-cultural knowledge of the language. To alleviate the L2 effects on the

students' understanding of the questionnaire, it was written in Chinese. This self-report questionnaire consisted of ten items following the general format of "I did such-and-such". The students were expected to respond to each statement on a five-point scale: 1. Never or almost never true of me, 2. Usually not true of me, 3. Somewhat true of me, 4. Usually true of me, and 5. Always or almost always true of me. To prevent the tendency for students to score each question very high or low all the way through, questions 1-3 were asked in a negative direction while questions 4-10 were asked in a positive direction.

3.5.3 Audio or video tapes for listening ability assessment

Primarily oral language may be grouped into four modes based on Beile's categorization (Byrnes, 1984: 319). They are spontaneous free speech, deliberate free speech, oral presentation of a written text and oral presentation of a fixed, rehearsed script. Spontaneous free speech is characterized by the interaction of the situation, that is, initiating, turn-taking, leave-taking strategies, overlapping speech, checking of the channel, repairing possible lapses in the partner's comprehension and by the constraints on the speaker's manner of speech production, which may induce poor ordering, discontinuous, fragmented syntax, rephrasing, different lexical choices, etc.. Deliberate free speech occurs in interviews and discussion, which has a higher information value but maintains some of the interactional characteristics of spontaneous speech. Oral presentation of a written text occurs in news reports, commentaries and lectures, where transmission of information is the objective and interactional considerations are less important. Oral presentation of a fixed, rehearsed script occurs on stage or in a film. This will bring about highly stylized forms of delivery which reflect aesthetic and artistic value above and beyond the message itself.

English learners in Taiwan do not have a beneficial environment for foreign language learning. The opportunity for learners and even instructors to use the language

outside the classroom or in face-to-face interaction with a native speaker is rare. Students are taught mostly in large mixed-ability classes, which means individual help from the instructor is very limited. The only quality input learners can obtain is through the formal instruction in the classroom, or through a few audio-visual tapes available in the market, or through English TV programs or radio broadcasts by English speaking radio stations. In the classroom, students in Taiwan are usually asked to listen to a text or a dialogue which is never addressed to them. In reality, the constraints on the English learning setting, often, leave the students in the role of overhearer, hearing words which are not aimed at them, for example, when watching or listening to the cassettes in the classroom.

The selection of text material is crucial in measuring English listening proficiency in terms of the reliability or validity of the assessment. Therefore, several aspects for determining the content of these audio or video materials have been taken into consideration:

(a) In order to approximate the real settings of foreign language learning in Taiwan, the selected testing materials in listening for this study are limited to two types. One is deliberate free speech, and the other is an oral presentation of a written text in news reports, commentaries, and lectures. However, all conversations must sound 'naturalistic'.

(b) Each testing segment cannot be too long for fear that it will overload the listeners' short-term memory.

(c) The difficult level of the texts must not be too far beyond or below the comprehension stage of the listeners.

(d) Material must be presented in the situations in which language is used for communicative or information-gathering purposes. It is necessary for each segment to provide the context so that listeners can establish who the interlocutors are and what they are doing.

(e) Material must be in the realm of common knowledge so all the subjects are more

or less familiar with the content.

In this research two sets of listening materials, audio as well as video tapes, were used (see Appendix 2 - A1, A2, A3, V1, V2 and V3) to evaluate listening comprehension ability:

1 Audio tapes at three different levels - elementary, intermediate, and advanced. The audio-tapes contain unrehearsed, spontaneous speech. In this study three segments of tapes were selected from *Studio Classroom*, a monthly magazine, also broadcast daily as an English-teaching radio program in Taiwan. Articles from various world-wide journals, newspapers, novels, and magazines are published in this magazine. All the *Studio Classroom* teachers are native speakers of English. There are always at least two native-speaking teachers, along with a Chinese teaching assistant on the program, explaining to the audience in a panel-discussion format. Materials used for measurement in this study are on three different levels, each dealing with general topics. The testings are designated as audio-testing 1 (A1), audio-testing 2 (A2) and audio-testing 3 (A3). A1 is about a friend who never pays borrowed money back. A2 is a discussion about motorcyclists wearing helmets and A3 is about a fatal fire in Taiwan. Each segment of the tapes in this study takes 3 minutes to complete. The researcher made a phone call to the *Studio Classroom* teachers, enquiring about how they categorize their articles into different levels of English. The answer was that the content or the topic is the major decisive factor. Articles with topics about common knowledge, life, sports, food, pets, etc, would be classified as low; those with more serious topics, such as social or economic problems, would be classified as intermediate and those with topics, such as headline news, news around the world, or of a professional bias, would be classified as high. Most basic or intermediate level articles are written by the *Studio Classroom* teachers while the advanced ones are adapted or collected from other world-wide journals, newspapers, or magazines. Although grammar or

sentence structures are not taken into consideration for categorization, advanced articles have lengthier sentences or are more complicated in their grammatical structure in comparison with the basic ones.

2 Video tapes of three different types: In this study, three segments of video tapes were selected from episodes of *Family Album* and *Success*, which are two of the most popular English-teaching video materials in Taiwan. Each segment of tape runs for 3-5 minutes. These videos are well-made in terms of the choice of color, sound effects, cast, and photography. Video-testing 1 (V1) and video-testing 2 (V2) were taken from the 8th and 9th videos of *Family Album*. V1 is a recording of informal conversation, mainly between adults and children. Another favorable feature is that this episode is rich in non-verbal actions. V2 is a conversation between teenage friends whose age is close to that of the research subjects. Video-testing 3 (V3) is extracted from the last part of *Success II*, which is graded at the L2 intermediate level of English proficiency. It is a combination of a news report and an interview with two American college students. V1 is about an episode of four children playing a charade in a hospital while waiting to have their tonsils removed the next day. V2 is about a teenager sharing her feeling with her boy friend after receiving a letter from home in Greece. V3 is a broadcast from two news reporters interviewing college students about their opinions and their concerns for environmental conservation. The most distinctive features of these videos compared to others available on the market, are that they have been filmed like movies, using language as it is actually used among native speakers.

3.5.4 Written protocol recalls

The research on the immediate recall protocol was originally carried out by Meyer (1975) to determine native language processing in reading comprehension. Students are usually asked to read a text silently. They are asked to write down everything they remember from the text as soon as they have finished reading the passage. Due

to the apparent validity of the immediate recall protocol as an indicator of reading comprehension and the difficulties in directly observing the language interpretative process, Meyer's work has been replicated for teaching foreign languages. Several researchers, including Meyer (1984), Mayer and Bromage (1972), Johnson (1970), Bransford and Johnson (1972), Bernhardt (1983) and Lee (1986), have relied heavily on recall protocols to measure aspects of language comprehension of second language learners.

The recall protocol is a measurement which stresses the importance of understanding the material. It is an alternative tool to compensate for the limitations of the conventional methods of testing language learning, such as true/false or multiple-choice tests. Using recall protocols, students do not have a chance to guess their way through and they must try to understand the material. Bernhardt (1983: 31) stated, "A recall protocol reflects process rather than product". She suggested that analyzing student protocols can explain students' learning problems which cannot be pinpointed by a true/false or multiple choice test. Her study of the use of recall protocols for testing reading skills indicates that the data reflect how the students comprehend the information and how they think about it.

The immediate recall protocol technique, which was originally designed for the development of reading comprehension, was adapted by other researchers to help develop second language listening comprehension (Bransford & Johnson, 1972; James, 1986a; 1986b; 1987). Learners are asked to listen to a target language text, and then to write down everything that they can recall about the text. As James (1986a; 1986b) advocates, the rationale for using the immediate recall protocol procedure for reading comprehension should work equally well for listening comprehension. James (1987) conducted a study investigating the immediate protocol as a means of determining what second language learners retain of a spoken text. A dialogue, a news broadcast, and a popular song were all presented to groups

of beginning-level students of German, who were then asked to write down all they could remember of the texts. His conclusions were that: (1) students should be encouraged to listen to the full text and not interrupt the listening process, (2) the protocol is used as a measure of text comprehensibility. The immediate recall protocol has proven to be one of the best means for determining the extent of listening comprehension of a target language text (James, 1986b). Rost (cited in Flowerdew, 1994) also claims that this method reflects the understanding processes that the listener is undertaking.

Therefore, this study uses the immediate recall protocol as an instrument to measure EFL students' learning performance in the six listening tasks. Students were asked to recall the content of the tapes or videos as accurately as they could and as many of the ideas as possible. To prevent the influence of English on their actual understanding of the content, they were free to choose their recall writing either in English or in Chinese. Upton's (1993) research result asserts that foreign language learners recall better in their own native language.

3.5.5 One-to-one interviews with the sampled subjects

Due to the neglect of listening comprehension and the complexity of the understanding process, the facts of how we listen and comprehend have largely remained a mystery for a long time. In a landmark methodological study, Hosenfeld (1976) successfully demonstrated how to probe the mental processes of what actually occurs in language learning. In order to get as close as possible to the learners' mental processes and thereby tap their learning strategies, she asked students to 'think aloud'. 'Thinking aloud' is a form of introspection, in which students are asked to respond orally to an instruction or probe and to describe their mental processes during a task. Her pioneering work developed the verbal report avenue of introspection as a methodology in second language research (Hosenfeld, 1977, 1979; Cohen & Hosenfeld, 1981).

A wide range of procedures have been used to elicit verbal reports on ongoing cognitive processes. Ericsson and Simon (1980) proposed a model for the verbalization processes of learners under different conditions. They distinguished between two types of verbalization: concurrent, when information is verbalized at the time the learner is attending to the task, and retrospective, when the learner is asked about cognitive processes that occurred at an earlier point in time (p. 218).

However, the reliability and the validity of verbal reporting as a research tool has been a debated issue. It is argued that L2 learners may not always be accurate in reporting their thoughts while processing information (cited in Cohen, 1984). There is, however, a growing body of literature which accepts verbal reports as a useful research tool under certain conditions and within certain limits (Ericsson and Simon, 1980, 1984; Faerch and Kasper, 1987). Ericsson and Simon claim that the listeners' verbal reports are informative about their cognitive processes and memory structures. By reviewing this information, they can provide an orderly picture of the exact way in which the tasks are being performed: the strategies employed, the inferences drawn from information and the accessing of memory by recognition.

However, the quality of the data depends on the length of the time lapse after the specific task is completed. If the data is collected in as close proximity as possible to the task, the immediate retrospective report allows some of the previously heeded information still available in the short term memory to be reported.

Despite initial criticism, 'thinking aloud' is currently gaining ground as an empirical procedure and has been adopted in numerous second language research projects. While the introspective methodology has originally been used to investigate processes in reading comprehension (Hosenfeld, 1977, 1979; Cohen & Hosenfeld, 1981; Cohen, 1987; Faerch & Kasper, 1987), quite a number of recent exploratory studies have,

with some success, adopted it to reveal L2 learners' listening strategies (Defilippis, 1980; Martin, 1982; Murphy, 1987; O'Malley, Chamot, and Kupper, 1989; Laviosa, 1991; Bacon, 1992a).

Martin (1982) has collected much of the data relating to participants' immediate retrospective think-aloud reporting, in which they describe the listening strategies they have used while listening. Murphy (1987), for example, has tried one-to-one interviewing. The listeners took intermittent breaks during the presentation of the listening selections by self-selecting the moments when their oral and written responses were to be expressed. They were free to choose to respond to the selections orally or in writing. Laviosa (1991) has used a procedure similar to the one employed in the previous two studies. O'Malley, Chamot, and Kupper (1989) have interviewed students using the 'think aloud' data collection technique. In the reporting phase, students were presented with three listening activities. Each listening passage had been previously taped and contained short pauses during which the interviewers stopped the tape and asked the subjects to describe their thoughts while in the process of responding to a listening comprehension task. Bacon (1992a) has elicited listening processes and strategies by asking the participants to listen to two radio passages after which they verbally reported firstly on their strategies and thought processes and secondly on their comprehension. They met individually with the researcher for one hour. Immediately following each passage, the researcher asked the subjects a series of questions designed to elicit their strategies and comprehension. All interviews were fully recorded and transcribed.

As a result of the internal nature of the listening process, it is not easy to identify the processes and strategies of listening comprehension, and it is also extremely difficult for a listener to listen to aural stimuli and at the same time verbalize his/her cognitive behaviour. It is evident that this area of study needs consultation with the language learners. O'Malley, et al. (1985a) states that retrospective reports yield the most

productive data. Faerch and Kasper (1987: 17) describe immediate retrospective reports as a method that re-activates traces of the cognitive processes still present in the short term memory, which helps to prevent the informants' tendency to link different events from their long-term memory and confuse them in retrospect. Laviosa (1991: 54) reports that the immediate retrospective technique is the most practicable in gathering information about the listening cognitive processes and strategies. Vandergrift (1992, 63) concluded that a structured retrospective interview reveals the actual listening act.

It appears that the argument against verbal reporting is not so much a rejection of the methodology itself, but more a question of how it is conducted. Based on a syntheses of the literature arguing for and against the verbal reports, Garner (1988) concluded that a number of guidelines would enhance the reliability and validity of research using such data as (1) To tap information available in the short term memory. (2) Minimizing disruption by using unobtrusive introspective methods and infrequent interruption. (3) Asking participants to report on specific events. (4) Ask participants what they do and think, not why. (5) Recognizing that verbal reports may contain useful information even if they are incomplete. (6) Assessing the reliability of responses.

Therefore, in this study, the one-to-one interviews were intended to help identify the inference-making process of these listeners and to find the strategies they used for comprehension. The fifteen subjects were respectively asked to give comments on both the A1, A2, A3 and the V1, V2, & V3 conversation segments immediately after they finished their protocol writings, for audio testing as well as video testing. They were asked to explain how they tried to understand the oral input and what they were doing during the formation of interpretation. All the comments were tape-recorded. The carefully designed questions, which cover linguistic, extra-linguistic and cognitive strategies, were used to help the researcher to elicit the maximum

information about the strategies adopted by the learners. The questions used in the interview are as follows:

1. *Do you try to listen to every word of the sentences?*
2. *Do you think you will fail to understand a conversation when there are too many words that you do not know?*
3. *Do you think it will help you understand better if you are given a vocabulary list with their meanings in Chinese and English before you listen to a conversational segment?*
4. *Do you try to translate word for word?*
5. *Do you use your grammatical knowledge to help you understand better? e.g. to identify the subject and the verb of the sentence?*
6. *Do you pay attention to the verb tense when listening to a conversation?*
7. *Do you try to identify sentence patterns to help you understand better?*

Questions 1-7 aim to identify whether linguistic cues such as sound discrimination, word recognition, grammatical knowledge, subject and verb identification have been used or have been considered important by the subjects for the construction of their comprehension of the input data. For L2 English learners at the lower level of English proficiency, it is usually by going through the bottom-up decoding process that they understand an oral input.

8. *Are you familiar with what the speakers talk about? Do you try to associate what you heard with what you already knew?*
9. *What did the speakers in the tapes (or videos) intend to say? How do you know? How do you guess what they intend to say?*
10. *Do you try to make sense of what the speakers talk about by searching for some key words in the conversation?*
11. *Do you try to make sense of what the speakers talk about by searching for a context in the conversation? e.g. to identify the relationship of the interlocutors, or the situation that the conversation might be about?*
12. *Do you try to make sense of what the speakers talk about by identifying what type of talking that the conversation might be classified as? e.g. information-bearing? story-telling? argument-ongoing? or social talking?*
13. *Do you try to connect the relationship between what you already knew and new things or ideas you heard in the conversation?*
14. *Do you try to make sense of what the speakers talk about by predicting what they are going to say next?*
15. *Do you try to make sense of what the speakers talk about by identifying what stand the speakers take? e.g. Are they reporting facts, expressing*

opinions, showing emotions, or sharing experiences?

Questions 8-15 aim to reveal whether strategies such as using prior knowledge, capturing key words or phrases, searching for a context, connecting ideas, discerning for critical listening, have been adopted to predict, to confirm, or to modify the construction of their comprehension of the input data.

16. *Do you think the speakers talk too fast? Or too slowly?*
17. *Do you think you will understand better if they slow down?*
18. *Are you interested in what the tapes or videos talk about?*
19. *Do you try to understand a film by paying more attention to verbal expressions or to non-verbal expressions?*
20. *Of the three tapes or videos, which is the easiest to understand? Which one is the most difficult to understand? Why?*
21. *Which speaker in the conversational segment is the easiest to understand? Which one is the most difficult to understand? Why?*
22. *Do you think you will understand better if you keep listening to the same tape over and over again?*
23. *Because you have listened to the tapes for x times, did you find repetition helpful for listening comprehension ?*
24. *Because you have watched the film for x times, did you find repetition helpful for listening comprehension?*
25. *What is the maximum time which you think would really help enhance your comprehension for each segment?*

Questions 16-21 aim to find out whether the sampled students feel the difficulty of the materials is at about the same level as their English proficiency or whether they are interested in the materials, whether they tend to understand female/male English better or whether they use the strategy of observing non-verbal actions. Questions 22-25 aim to find whether the repetition of listening to the text would enhance comprehension. It is acceptable for us to think that repetition has a good effect on reading comprehension; but with listening comprehension, it would be very interesting for TESOL educators to find the effects of repetition on foreign/second language listening. In addition, it should be better to take these extra-linguistic factors into consideration for the validity and reliability of the research.

3.6 Methods of scoring the assessments used in this study

Methods that the researcher uses to score the data invariably influence findings. This section details how protocol recalls, reports on interviews, and various elements of the proposed model are evaluated and scored.

3.6.1. Scoring protocol recalls

To analyze students' protocols, an idea-unit analysis was implemented by using the content-structure analysis recommended by Meyer, which has been found to be extremely facilitative and reliable for scoring recall protocols (Meyer, 1975: 188). Content-structure analysis permits a detailed examination of the amount and types of idea units recalled from the text. Meyer depicted the content of a passage in a tree-like diagram, which shows how the semantic content of the passage is structured. Ideas high in the structure tend to correspond to what educators have called main ideas while ideas low in the structure tend to correspond to what has been identified as detailed information. Such a diagram of a passage shows how all the ideas can be classified into a hierarchy—some ideas in a passage are parallel to others while some are super-ordinate or subordinate to others. The ideas at the various levels are content words and phrases from the text.

Meyer (1975) described role predicates and rhetorical predicates as labels for relationships between content words in the passage, but they are not content words themselves. Role predicates play different types of roles such as agent (instigator of an action), instrument, force, vehicle, patient (who or what is directly affected by an action), benefactive, latter, former and range (p.41). Rhetorical predicates are primarily responsible for giving the text its overall organization. They are often found at the top or higher levels of the content structure where they show how the ideas are related to each other. These include 'antecedent/consequent' (cause-effect relationship), 'comparison', or 'description.' There are three kinds of rhetorical

predicates—Paratactic, Hypotactic, and Neutral. Paratactic rhetorical predicates have at least two arguments of equal weight, for example, the arguments, such as, problem and solution, or the comparison between two arguments, are of equal weight and at the same level in the content structure. In contrast, the arguments of the hypotactic rhetorical predicates are not of equal weight, one argument is singled out from the other arguments that describe or give further information about it, for example, explanation or attribution types of hypotactic rhetorical predicates. Neutral rhetorical predicates can take either a paratactic or a hypotactic form depending on the emphasis given to them by the speaker or the writer of the text, for example, collection or covariance types of neutral rhetorical predicates. Collection is a list of elements related into a group in some manner and covariance often refers to condition or antecedent/consequence relationship. Their arguments can be at an equal level in the content structure or one can be superordinate to the others.

Role predicates and rhetorical predicates are differentiated into two groups because roles are always dominated by certain special types of content words called lexical predicates, while rhetorical predicates are not. These lexical predicates are content words which show the relationships among other content words, thus, they are called lexical (word) predicates (relations). These lexical predicates are some of the verbs and their adjuncts from the text. They always dominate their role related arguments; they are one level higher in the content structure than the content words which are their arguments. (p.41)

To perform the analysis, the following steps have to be taken:

Step 1: The six testing materials in the present study (A1, A2, A3, V1, V2, & V3) are transcribed to do the content analysis (see Appendix 2).

Step 2: Rhetorical predicates in the six testing materials are identified. Just as described previously, rhetorical predicates are the sets of rhetorical relationships among ideas throughout the text. The analysis produces a 'macroproposition level.'

For example, in A3 *Fire,* it is obvious that the text was held together by the combination of 'cause-effect relationship' and 'problem and solution'. For the first half, the cause is that *the emergency exits were blocked*; the effect is that *people cannot get out.* For the second half, the problem is *why do the buildings not have the emergency exits*; and the solution is *to make sure that there is a fire exit that you can get through.* These macro-propositional levels provide the skeletal framework for all subsequent levels.

Step 3: The subordinating idea units were hierarchically arranged beneath the macropropositions to yield 'micro-propositional levels' using the rhetorical relationship as cues to guide the analysis. For example, in A3, an explanation was provided as to *how buildings were properly built,* but the adversative was followed by stating that *the user, occupant or tenant blocked them off and irresponsible inspectors closed their eyes.* They are placed beneath the macro-propositional level. The information provided in each successive micro-propositional level thereafter decreased in its importance to the meaning of the text. Once the analysis was completed, the hierarchical representation of the text was produced (see Appendix 3).

Step 4: To assign a points value system, these idea units were listed vertically in descending order and each idea unit was assigned a representative number. The levels were also assigned point values in descending order for scoring purposes. In Meyer's scoring system, more points are awarded for idea units of greater importance to the meaning of the text as a whole and fewer points for idea units of less importance. Each idea unit was assigned point values with the top level being awarded five points, the second highest level four points, etc. (see Appendix 4).

Step 5: For ease in scoring the recall protocols, all the idea units were rearranged in the order of their occurrence in the text. Thus the scoring sheet is generated. This was then used as the instrument against which the student protocols were scored (see Appendix 5).

Step 6: The raw score was converted to a percentage of the full marks in that particular recall using the following formula: (raw scores/full marks)×100. For

example, if the raw score was 60, the full marks were 109, then the converted score was 55.05.

3.6.2 Scoring the strategies

There are three kinds of sources from which the present researcher collects the data about the strategy use. One is from the interview report, another from analyzing students' protocol recalls, and the other from the Likert attitude questionnaire. All the strategies related to interpreting audio and video tapes in this study are grouped into three categories: linguistic, cognitive and extra-linguistic (see Table 1). The first nine strategies are grouped as a linguistic category, the 10th to 22nd strategies as a cognitive category and the 23rd to 30th strategies as an extra-linguistic category. In Table 1, the first column lists the strategies and the second column describes the correspondent definitions of those strategies. A linguistic category are strategies used on the basis of the textual elements. These are considered less cognitively demanding processing strategies. A cognitive category are strategies used on a cognitive level. These are considered more cognitively demanding processing strategies. An extra-linguistic category are strategies used on the basis of what the listener sees, hears or feels in the contextual situation at the moment of utterance.

In order to quantify the collected data from the interviews (see Table 2), a judgment was made according to the answers to the questions in the one-to-one interviews about whether the students had applied such strategies, as to attend to every word of the sentence, pay attention to verb tense, listen to sentence pattern, go through the English-Chinese translation process, search for key words or phrases, grasp the global meaning, identify a situation, search for the relationship of the participants, search for new knowledge from the context, associate new messages with prior knowledge or whether repetition is helpful, etc. One point was recorded for the specific student if he/she indicated with certainty that he/she had used that particular strategy during either one of the interviews while processing the message and zero point was recorded

	Strategy	Definition
L	1. Single Word	to attend to every word of the sentences
I	2. Translate W for W	to operate English-Chinese translation process consciously from word to word or phrase to phrase
N	3. Grammar	to use grammatical knowledge to help comprehension
G	4. Verb Tense	to pay attention to the verb tense while listening
U	5. Sentence Pattern	to comprehend by identifying sentence patterns
I	6. Vocabu List	Will a vocabulary list in Chinese and English help comprehension?
S	7. Many New Words	Would too many new words in the text hinder comprehension?
T	8. Key W & P	to comprehend by searching for key words or phrases in the text
I	9. Transferring	to translate what they have heard into Chinese when they come to difficulties
C		
	10. Predict	to comprehend by predicting what is going to occur next
	11. Confirm	to confirm what has been predicted
	12. Global Meaning	to grasp the global meaning of the text
	13. Situation	to comprehend by identifying the situation that the conversation might be about
C	14. Parti & Rel	to comprehend by identifying the relationship of the participants
O	15. Familiar	Are the listeners familiar with what the speakers talk about
G	16. Associate Knowledge	to associate what is heard with previous knowledge
N	17. Infer Meaning bet Words	to guess at meaning or to draw underlying meaning between words or phrases in the context
I	18. Construct framework	to construct the relationship or to draw underlying meaning among ideas in the context
T	19. Genre	to comprehend by characterizing what types of talking that the conversation might be classified as, e.g., information bearing? story-telling? argument-ongoing? or experience sharing
I	20. New Knowledge	to comprehend by making inference between what is known and what is unknown to the listener
V	21. Notes	to take notes to help comprehension
E	22. Selective Attention	to focus on relevant information and disregard what is judged as irrelevant information at the moment of listening

Table 1. (continued)

EXTRA|LINGUISTIC	23. Repeated Word in the Text	to comprehend by making use of the repeated words in the text
	24. Keep Trying	to comprehend by not giving up, keeping on listening to the text over and over again
	25. Pragmatic Knowledge	Do listeners have adequate amount of pragmatic knowledge for comprehension? Knowledge of the English language and their customs and cultures to which they have been exposed was measured by a survey indicating the amount of efforts the listeners have put in in their daily life.
	26. Repetition Helps	Does repetition help comprehension?
	27. Interesting	Are listeners interested in what they have heard?
	28. Vocal	Do the vocals, which include pitch, intonation, stress and pause, have some influence on their comprehension?
	29. Visual Aids	Are listeners benefited by making use of the gestures, body language, contextual cues or other non-verbal behaviors?
	30. Positive Attitudes	Do listeners tend to give up or keep going under the difficult learning environment? A survey reflects the listeners' attitude toward English learning.

Table 1: Defining listening strategies

Sudent ID Name/cluster	Single Word	Translate W for W	Grammar	Verb Tense	Sentence Pattern	Vocabu List	Many New Words	Key W & Phrase	Trans ferring		Predict	Confirrm	Global Meaning	Situation	Parti & Rel	Fami liar	Associate Knowledge	Infer Meaning bet Words	Construct • Framework
01yang A+V+	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	1	0	0	1	1 A-1 v-1	1 A-1 V-1		1 A-1 v-1	1 A-1 v-1	1 A-1 v-1	1 A-1 v-1	1 A-1 V-1	1	1	1 A-1 V-1	1
02hsu A+V+	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	1	0	0	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	1
03liau A+V+	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	1	0	0	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	1
04lu A+V+	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	1	0	0	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
o5luo A-V+	1 A-0 V-1	0 A-0 V-0	0 A-0 V-0	1	1	1	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	1
08jang A-V+	1 A-0 V-1	0 A-0 V-0	0 A-0 V-0	1	0	1	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
09fan A-V+	0 A-0 V-0	0 A-0 V-0	1 A-1 V-1	0	1	1	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	1
10jia A-V+	1 A-1 V-0	1 A-1 V-0	1 A-1 V-1	0	0	0	1	1 A-1 V-1	0 A-0 V-0		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
11jian A-V+	0 A-0 V-0	1 A-1 V-0	0 A-0 V-0	0	0	1	1	1 A-1 V-1	0 A-0 V-0		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
06liou A-V-	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	0	0	0	1	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
07li A-V-	0 A-0 V-0	0 A-0 V-0	0 A-0 V-0	0	0	1	0	1 A-1 V-1	1 A-1 V-1		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	1 A-1 V-1	0
12tsai A-V-	1 A-0 V-1	1 A-1 V-1	0 A-0 V-0	0	0	1	1	1 A-1 V-1	0 A-0 V-0		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	0 A-0 V-0	0
13jiang C4	1 A-1 V-1	1 A-1 V-1	0 A-0 V-0	0	0	1	1	1 A-1 V-1	0 A-0 V-0		1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1 A-1 V-1	1	1	0 A-0 V-0	0
14shyr C4	1 A-1 V-1	1 A-1 V-1	0 A-0 V-0	0	0	1	1	0 A-0 V-0	0 A-0 V-0		1 A-1 V-1	0 A-0 V-0	0 A-0 V-0	1 A-1 V-1	1 A-1 V-1	1	0	0 A-0 V-0	0
15huang C4	1 A-1 V-1	1 A-1 V-1	0 A-0 V-0	0	0	0	1	0 A-0 V-0	0 A-0 V-0		1 A-1 V-1	0 A-0 V-0	0 A-0 V-0	1 A-1 V-1	0 A-0 V-0	1	0	0 A-0 V-0	0

Table 2. (continued)

Sudent ID Name/Cluster	Genre	New Knowledge	Notes	Selective Attention	Others		Repeated Word in the Text	Keep Trying	Pragmatic Knowledge	Repetition Helps	Interesting	Vocal	Visual Aids	Positive Attitude	
01yang A+V+	1	1 A-1 V-1	0 A-0 V-0	0 A V			1 A-1 V	1 A V (6)	1	1 A-443 V-2	1	1	1	1	
02hsu A+V+	1	1 A-1 V-1	0 A-0 V-0	0 A V			0 A-0 V	0 A V	1	1 A-232 V-1	1	1	1	1	
03liau A+V+	1	1 A-1 V-1	1 A-1 V-1	0 A V			1 A-1 V-1	0 A V	1	1 A-432 V-1	1	1	1	1	
04lu A+V+	1	0 A-0 V-1	0 A-0 V-0	1 A V-1			0 A-0 V-0	1 A V (9)	0	1 A-5 V-4	1	1	1	1	
o5luo A-V+	1	0 A-1 V-0	1 A-1 V-0	0 A V			1 A-1 V	0 A V	1	1 A-322 V-2	1	1	1	1	
08jang A-V+	1	0 A-0 V-0	1 A-1 V-0	0 A V			0 A-0 V	1 A V (9)	0	1 A-442 V-125	1	1	1	1	
09fan A-V+	1	0 A-0 V-1	1 A-1 V-0	0 A V			0 A-0 V	0 A V	1	1 A-232 V-3	1	1	1	1	
10jia A-V+	0	0 A-0 V-0	1 A-1 V-0	1 A-1 V			1 A-1 V	1 A V (6)	0	1 A-222 V-4	1	1	1	0	
11jian A-V+	1	0 A-0 V-0	0 A-0 V-0	0 A V			0 A-0 V	1 A V (7)	0	1 A-323 V-4	1	1	1	1	
06liou A-V-	1	0 A-1 V-0	0 A-0 V-0	0 A V			0 A-0 V	1 A V (7)	0	1 A-554 V-2	1	1	1	1	
07li A-V-	1	0 A-0 V-1	1 A-0 V-1	0 A V			0 A-0 V	0 A V	1	1 A-211 V-1	1	0	1	1	
12tsai A-V-	0	0 A-0 V-0	1 A-1 V-0	0 A V			0 A-0 V	0 A V	0	1 A-332 V--2	1	1	1	0	
13jiang C4	1	0 A-0 V-0	0 A-0 V-0	0 A V			0 A-0 V	1 A V (10)	0	1 A-635 V-4	1	0	1	0	
14shyr C4	0	0 A-0 V-0	0 A-0 V-0	0 A V			0 A-0 V	1 A V (20)	0	1 A-15 72 V-5	1	0	1	1	
15huang C4	0	0 A-0 V-0	0 A-0 V-0	0 A V			0 A-0 V	1 A V (9)	1	1 A-555 V-4	1	0	1	0	

Table 2. Interview Questionnaire Record about (A1, A2, & A3) & (V1, V2, & V3)

if he/she indicated that he/she had not. As for the item of 'vocal', students were given [1] if they pointed out the disturbance of very low pitch or the occurrence of very short pauses or monotonous intonation. There is an exception for the marking of the question: 'Did you try to connect the relationship between what you already knew and new things or ideas you heard in the conversation?' This is because of the high difficulty for hearers in ascertaining this critical memory association as new ideas are being formed. In order to ensure that they did implement this strategy students were given [1] only if they indicated yes to the same question for both interviews.

As for the items of 'construct framework' and 'keep trying', the collected data are derived from the protocol writings: 'Construct framework' is evaluated by whether the student can construct a framework for the text by counting the number of salient underlying propositions which remained in their short-term memory in their perception of the sequence of events which construct the framework of the text. All these selected audio or visual listening messages were analyzed into the conceptual framework of an idea units sequence (see Appendix 6). It is scored by counting the number of the most important propositions indicated in their protocol writing. To have 60 % correct is good enough for each test. [1] was recorded for the specific student if he/she succeeded in four or more of the listening tests (A1, A2, A3, V1, V2, & V3). 'Keep trying' is evaluated by the summation of the number of times that students listened to the audio tapes or that they watched the video tapes. The record is self-reported on the students' recall writings. Students were given [1] if the record of repetition was 6 or more times.

As for the items of 'pragmatic knowledge' and 'positive attitude', the scores are obtained by scoring the Likert attitude questionnaire. 'Pragmatic knowledge' is evaluated by the outcome from questions 5-10 of the attitude questionnaire. Students were given [1] if they earned 18 or more points. 'Positive attitude' is

evaluated by the outcome from questions 1-3 of the attitude questionnaire. Students were given [0] if they had 8 or more points.

3.6.3 Scoring the value of different parameters of the listening comprehension model

Figure 11 illustrates the structure of the proposed model. The model consists of three levels; therefore, *all elements* on each level need to be scored so that the relationship among the elements or the levels can be quantified. The scores of all the elements are converted to a percentage. The scoring of each element in the model is explained as follows.

(1) Understanding

The over-all proficiency of listening comprehension is evaluated by the protocol recalls. Therefore, understanding is evaluated by the total points the student earned for six testings (A+V+).

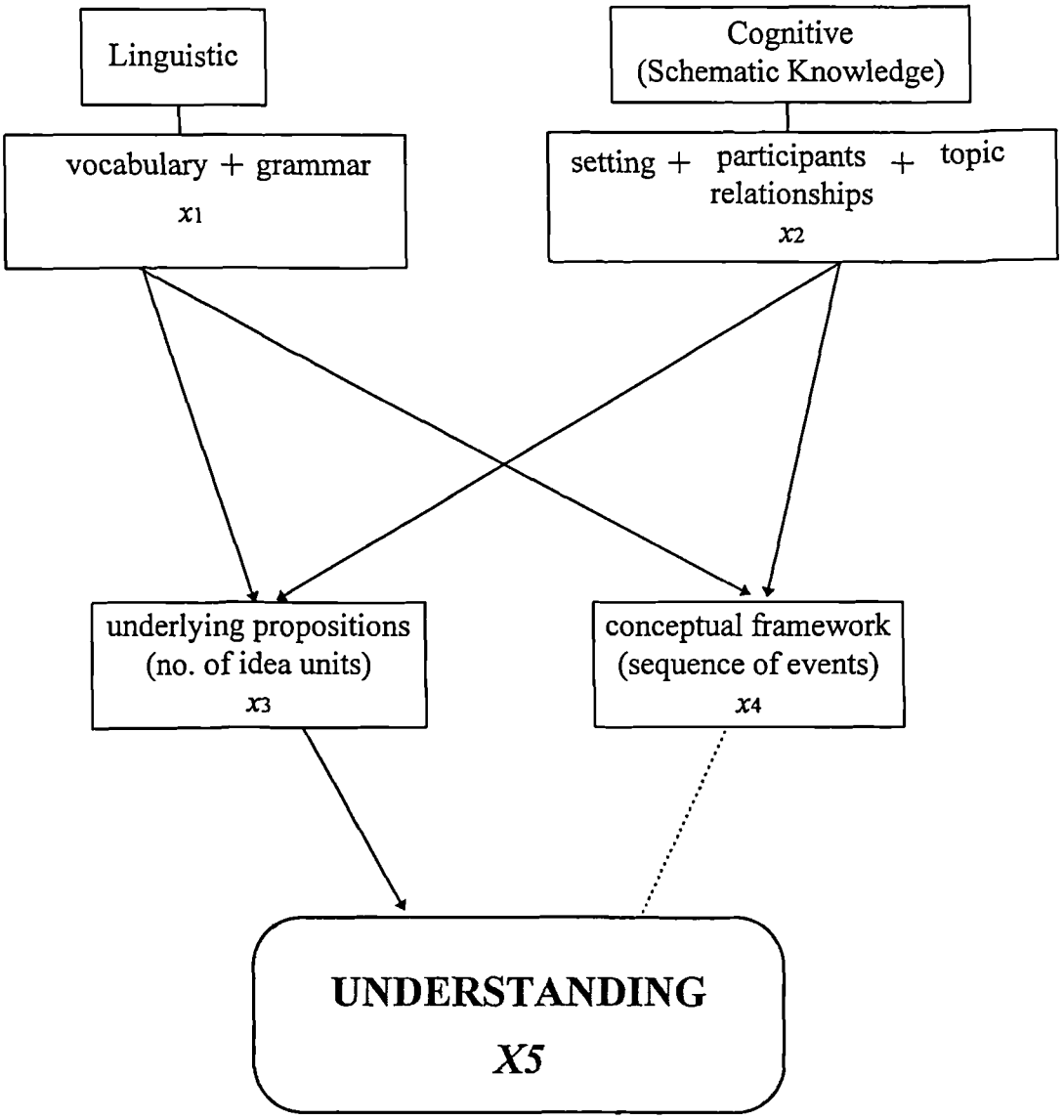
(2) No of idea units

The number of idea units was evaluated by the summation of the number of correct idea units contained in the hierarchical representation of the text in Meyer's scoring system. Students earned one point for each idea unit found in their writing.

(3) Conceptual framework of the text

This element is different from the *number of idea units.* The *conceptual framework of the text* shows the sequence of events which are presented in the order they appear in the text. This framework contains the most salient underlying propositions from the text. In contrast, *idea units* refer to all the idea units contained in the hierarchical representation of the text. All the selected audio or visual listening messages (A1, A2, A3, V1, V2, & V3) were analyzed and placed into a sequence of idea units. This element was evaluated by counting the number of salient underlying propositions which remained in the listener's short-term memory in the perception of the sequence

Fig.11. A Proposed Listening Comprehension Model in an EFL Context



of events which construct the framework of the text. It was scored by the summation of the number of correct salient underlying propositions indicated in the protocol recall. For example, if the correct number is 9 and the full mark of that particular listening task (e.g. A2) is 11, then the converted score is (9/11)×100.

(4) Vocabulary or Grammar

The accumulation of the student's vocabulary or grammatical knowledge is evaluated by the vocabulary scores (vocabulary) or grammar scores (grammar) on the Michigan English Placement test (MEPT).

(5) Participants and their relationships, setting, or topic establishment

The ability or the speed at which participants and their relationships and the setting were identified, or the salient topic was established was evaluated by the time required for the students to recognize the elements. This was scored from the ink color of pens they used—blue for the first time, red for the second, and green for the third and subsequent times. Since this was a self-paced test for the third time and subsequent times, the students were allowed to listen to or watch the tapes as many times as desired. Therefore, the students were given 1.00 if these elements were found in blue ink, 0.5 in red ink and 0.25 in green ink. No point was given if such elements were not identified in their writing.

In summary, this chapter offers an account of the research design, the procedures employed in this study as well as a description of the instruments used together with their scoring methods. The data collected were then analyzed by means of SPSS and SAS on a personal computer. The results are presented in Chapter 4.

Chapter 4 Data Analysis and Results

This chapter presents the analyses and the results performed on the data as described in Chapter 3. Three major categories of analyses and their results will be presented. For category (1), the method of analysis and results on factors affecting the understanding of spoken language will be delineated. For category (2), the method of analysis and results on the relationship between the choice of listening strategies and listening proficiency levels will be reported. For category (3), the method of analysis and results on the proposed model of EFL Chinese learners will be presented.

4.1 Factors contributing to the understanding of spoken language

To analyze the factors affecting the understanding of spoken language, the collected data from the written protocol recalls were used in two ways. The first one was to assess the strength of relationship between linguistic factors and the overall listening comprehension performance. The second one was to analyze graphically the way extra-linguistic factors differentiated students' listening proficiency levels.

In Table 3, the fifteen students are listed on the vertical axis and the results of the MEPT and protocol recalls on the horizontal axis. Students on the vertical axis are sequentially numbered according to their overall performance in listening comprehension (the A+V+ scores). Thus, the student who scored highest in A+V+ is ranked as No. 1, the next highest as No. 2, etc. Since the maximum scores for various tests differ from each other, all the entries in Table 3 were converted into percentages for fair comparison. The second column (G+V) listed the averages of the grammar and the vocabulary scores, which were used to select the fifteen research subjects in the first instance. The third (G) listed the grammar scores of the MEPT, and the fourth (V) the vocabulary scores. The fifth column (A+V+) consisted of the average scores of all the idea units in the six audio and video tests, which reflected the informants' understanding of the listening task. The sixth column (A+) represented the averages of all the idea units in the audio tests. The seventh column (V+)

provided the averages of all the idea units in the video tests. The eighth column, 'semantic', represented the percentages of the average number of idea units used by the subjects in the six audio and video tests. The last column, 'text structure', represented the percentages of the average number of idea units on the top two levels in the hierarchical representation of the text in Meyer's scoring system.

student	MEPT(G+V)	G	V	A+V+	A+	V+	semantic	text structure
01yang	88.33	90.00	86.67	53.74	51.73	55.75	51.08	58.34
02hsu	95.00	100.00	90.00	53.09	50.43	55.75	49.46	55.17
03liau	83.33	83.33	83.33	48.92	49.58	48.25	43.01	64.78
04lu	86.67	93.33	80.00	48.30	48.04	48.56	42.47	69.72
05luo	85.00	86.67	83.33	46.55	43.00	50.10	41.94	52.28
06liou	88.33	90.00	86.67	45.64	47.65	43.64	43.01	49.50
07li	90.00	90.00	90.00	44.85	43.64	46.07	38.17	51.48
08jang	85.00	76.67	93.33	44.72	31.53	57.91	39.25	53.41
09fan	90.00	93.33	86.67	42.35	31.80	52.91	36.02	50.91
10jia	86.67	83.33	90.00	40.22	32.27	48.17	34.95	51.94
11jian	86.67	86.67	86.67	39.95	29.65	50.25	33.87	46.88
12tsai	86.67	90.00	83.33	33.07	28.54	37.59	29.57	52.63
13jian	35.00	46.67	23.33	22.05	06.74	37.36	17.20	33.62
14shyr	26.67	23.33	30.00	19.96	14.82	25.09	17.20	30.96
15huan	36.67	40.00	33.33	05.89	02.75	09.04	04.84	06.61

Table 3. MEPT Scores and Protocol Recall Scores

As mentioned in Chapter 2, three linguistic factors, namely syntactic cues, semantic cues, and semantic-syntactic cues, are very important for EFL learners. However, this study is more interested in finding out the relative importance of the various linguistic factors in relation to the understanding process of the learners, given that they had the same level of English proficiency level in grammar and vocabulary. Therefore, the analyses on linguistic factors are performed using the twelve high-scorers in the Michigan English Placement Test. The results are presented in two aspects as follows: linguistic and extra-linguistic.

4.1.1 Linguistic factors vs L2 listening comprehension

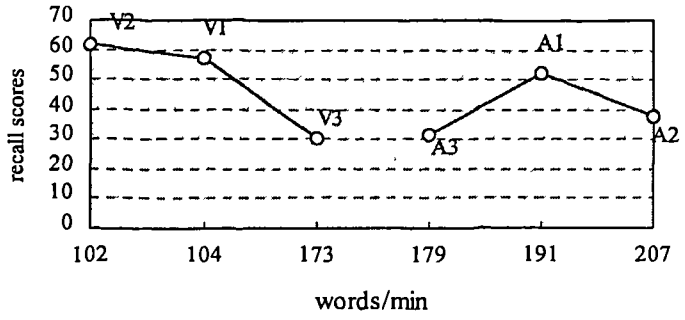
As for the proficiency of the 3 linguistic factors, syntactic cues (G+V) were measured by the averages of grammar scores (G) and vocabulary scores (V) in the Michigan English Placement Test (MEPT). Semantic cues (Semantic) were measured by the percentages of the average number of idea units from the audio and the video tapes (A1, A2, A3, V1, V2 & V3). Finally semantic-syntactic cues (Text Structure) were measured by the percentages of the average number of the idea units only on the top two levels in the hierarchical text representation in Meyer's scoring system. In addition, the overall proficiency of listening comprehension (A+V+) was assessed by way of the protocol recalls, as scored in Meyer's system.

Pearson correlation coefficients were used to measure the strength of relationship among the six variables. As seen in Table 4, the correlation coefficient between G+V and A+V+ was a mere 0.294, indicating that there was a weak positive correlation. In other words, students who scored well in vocabulary and grammar did not necessarily perform as well in their listening comprehension. The correlation coefficient r = 0.4929 between text structure and A+V+ indicates that there was a moderately strong positive correlation. The correlation between semantic cues and overall listening comprehension performance (A+V+) was a high 0.975, indicating that it was a strong positive correlation. The p-value ≤0.001 substantiates that this is unlikely to be a chance relationship.

Correlations	G+V	G	V	Semantic	Text Structure
A+V+	r =0.2936	r =0.2807	r =0.0344	r =0.9745**	r =0.4929
N of cases: 12		2-tailed signif:	**-.001		

Table 4. Pearson Correlation Coefficients—linguistic factors vs L2 listening comprehension

Fig.12: Speech Rate vs Comprehension



4.1.2 Extra-linguistic factors vs L2 listening comprehension

Generally speaking, extra-linguistic cues derive from what the listener hears or sees at the moment of utterance. This part of the analysis is intended to study the effects of the speech rate, number of idea units in the tapes, repetition of/in the text material, contextual support, and voice pitch. The results were displayed graphically in Figures 12-23.

4.1.2.1 Speech rate in terms of number of words per minute (see Appendix 7)

If the speech rate is interpreted as the number of words per minute, Pimsleur, Hancock, and Furey (1977) have determined that English news broadcasts are more difficult for L2 learners to understand because they are delivered at approximately 180 words per minute. Accordingly, Pimsleur, et al. have concluded that the flow of words is beyond the control of the listeners. The plot of speech rate (words/min) vs L2 listening comprehension is shown in Fig 12. The speech rates of tapes A1, A2 and A3 were 191, 207 and 179 words per minute respectively. The corresponding recall scores were 52.4, 37.9, and 31.6, respectively. There seemed to be no obvious relationship between speech rates and recall scores. An increase in speech rate did not reduce the recall scores for the audio tests in this study. The speech rates for the video tests were slower with 104 and 102 words/min for V1 and V2 respectively. The corresponding recall scores were 56.9 and 62 points, which were relatively higher than the audio tests. The recall score dropped dramatically to 29.9 as the speech rate

increased to 173 words/min for V3. These data did not agree with the results reported in previous studies of similar nature (Pimsleur, Hancock, and Furey, 1977; Kelch, 1985; Griffiths, 1992).

4.1.2.2 Speech rate in terms of number of ideas per minute in the tapes

The speech rate can also be interpreted as the number of idea units per minute. Figure 13 shows the number of ideas in the tapes vs L2 listening comprehension. It was found that there were 9.9, 10.2,10.9 ideas per minute in A1, A2, A3 and 3.9, 6.2, 13.7 ideas per minute in V1, V2, V3. In terms of actual playing time, the video tapes took longer to complete, but they contained a smaller number of idea units than the audio tapes. The recall scores indicated that students performed much better with video tapes containing fewer ideas than with audio tapes. In view of the video group, Figure 13 indicates that, when the text was saturated with too many ideas (e.g. V3), visual effects on the listening comprehension process would be lost. As regards the audio group, the greater number of ideas a text contained, the lower the degree of understanding as demonstrated by students. With respect to the information above, it is very attractive to consider the number of idea units as a measure of the extent of comprehension in a listening task.

Fig. 13: Idea Units vs Comprehension

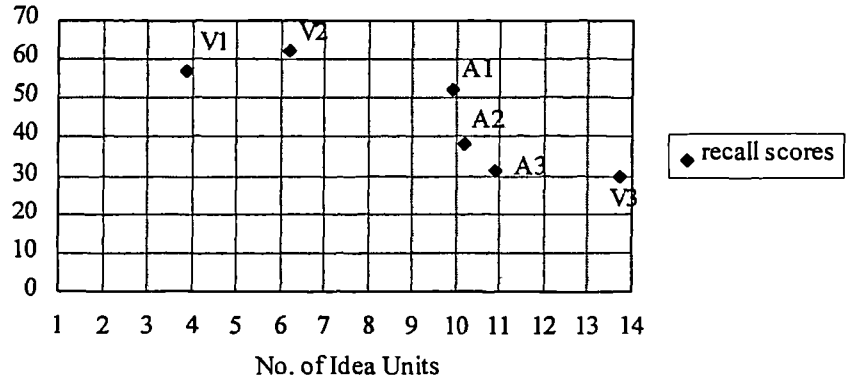
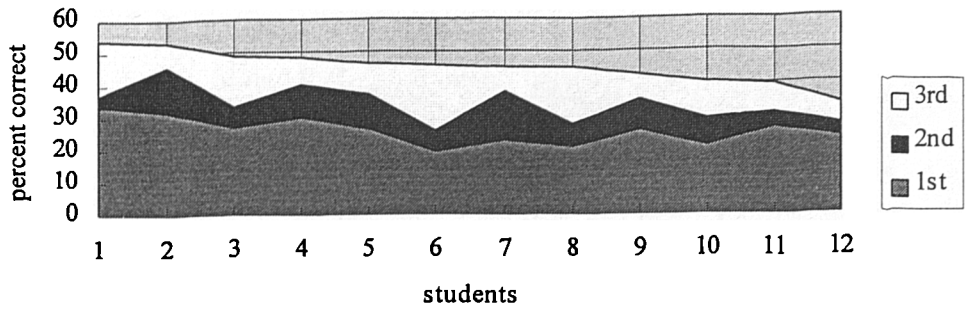


Fig. 14: Repetition Effects--A+V+



4.1.2.3 Repetition effects

As to the importance of the repetition of material in context, the findings of the study were in accordance with existing studies (Lund, 1991; Chaudron, 1983; Cervantes, 1983). The repetition effect could be studied by asking the students to listen to the entire texts many times. In Figures 14-20 the grey area indicates the scores attained by students in the first round of listening. The darker area was the increment in score from the second listening while the white area represented further increment from extra listenings. The students were sequentially numbered, based on their overall performance in listening comprehension (the A+V+ scores). Fig. 14 indicates the overall repetition effects on listening performance in all six tests. Fig. 14 illustrates that repetition of the texts did help the students in their listening comprehension. Furthermore, it was observed that the students with higher scores could grasp more meaning upon repetition than those with lower scores. Thus in a relative sense, repetition did not help students with lower scores as much as those with higher scores. Since both the audios and videos were selected at three different difficulty levels, it was informative to study the repetition effect in each test. In Fig. 15, it was found that all students benefited from repetition when the material (A1) was not too difficult for them. Fig. 16 illustrates that students 10-12 did not benefit as much as students 1-9 when the material (A2) was more difficult. Fig. 17 reveals that students 9-12 did not benefit as well as the higher-scored students when the material (A3) was comparatively much more difficult. Compared with audio materials, video

Fig. 15: Repetition Effect--A1

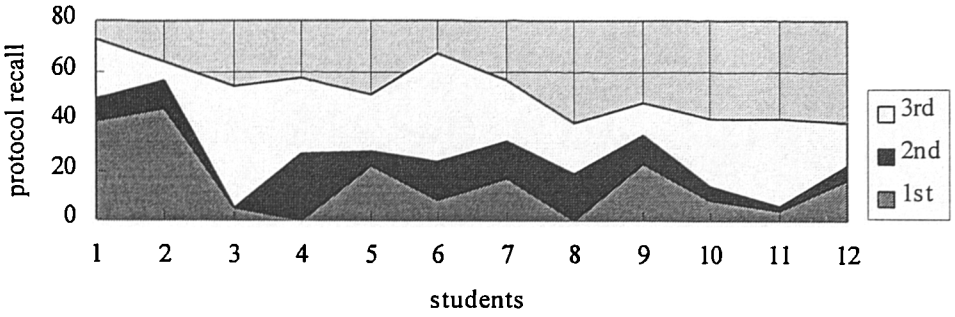


Fig.16: Repetition Effect--A2

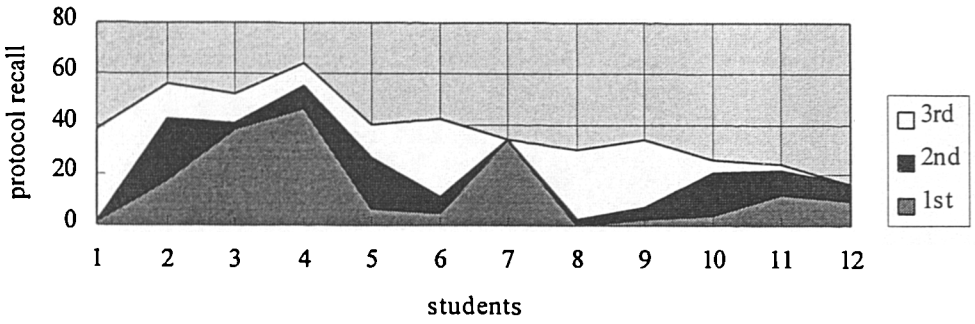


Fig.17: Repetition Effects--A3

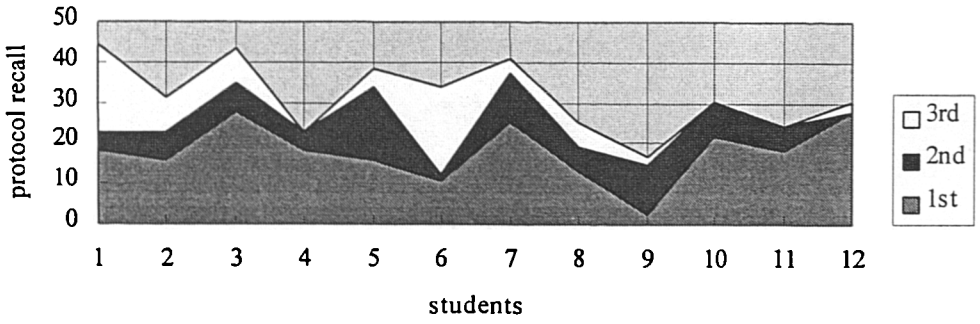


Fig.18: Repetition Effect--V1

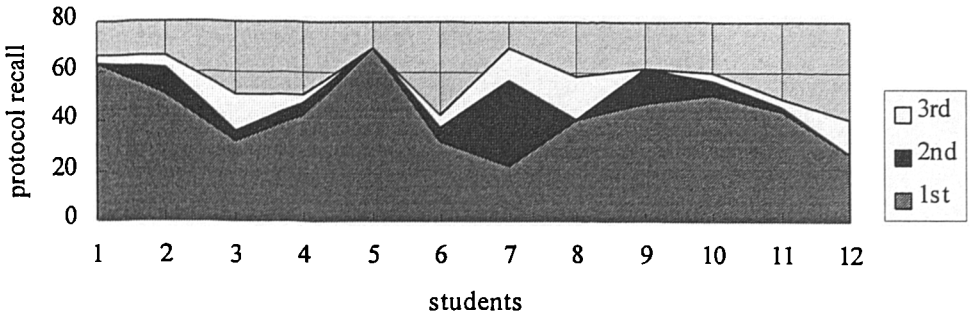


Fig.19: Repetition Effects--V2

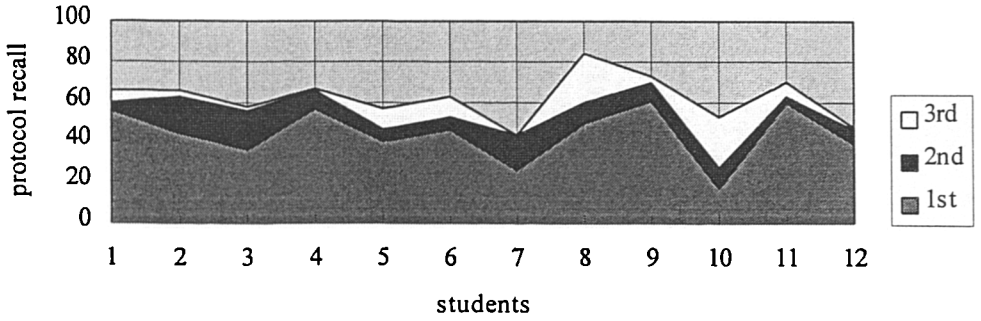
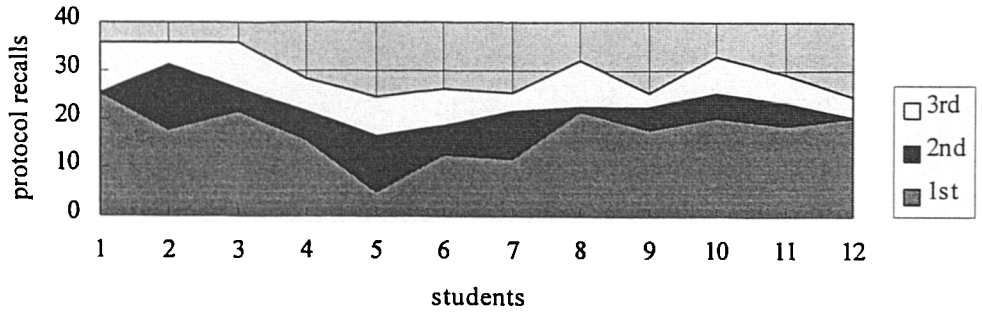


Fig. 20: Repetition Effects--V3

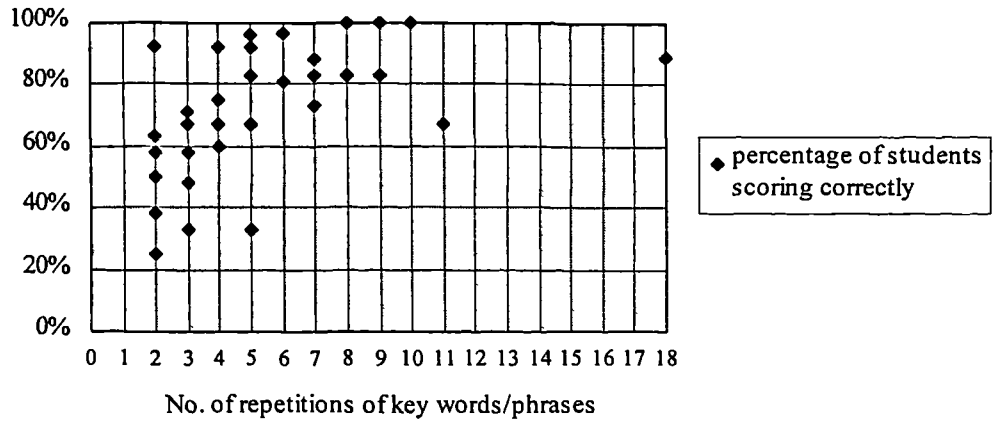


tapes V1 and V2 were less difficult because of the fewer idea units and the embedded rich visual content. It was observed, however, that the lower-scored students gained more increment in Figures 18-19. Apparently, those with higher scores in listening comprehension did not benefit as much as those with lower scores when the visual materials were less difficult. Fig. 20 reveals that all students benefited from repetition when the video text (V3) was more difficult. In conclusion, repetition of text does facilitate the understanding of the L2 learners. In addition, the benefit can

be optimized when the individual needs of the learners can be taken into account with respect to the selection of teaching materials with an appropriate level of difficulty.

The repetition effects can also be analyzed by tallying the number of repetitions of key words/phrases in the texts. Repetition occurs very often in the spoken language. The same key words/phrases are sometimes repeated several times in the oral texts. In daily conversation, a speaker uses repetition to show agreement with what another speaker has just said, or uses repetition to make sure that the listener is following, or repeats part of a question in order to facilitate the answering of it. In this study, the number of repetitions was tallied for each key word/phrase appearing in the text and the corresponding rate by which the students grasped the meaning of the associated ideas was tallied in percentages. It was found that the number ranged from 2 to 18 times for the tapes. In Fig. 21, the horizontal axis represents the number of repetitions of key words/phrases, and the vertical axis represents the percentage of students who scored correctly. This graph indicates that a greater number of repetitions helped L2 learners more in the construction of meaning in listening comprehension. It also confirmed Chaudron's findings (1983) that key word/phrase repetition helped clarify the text.

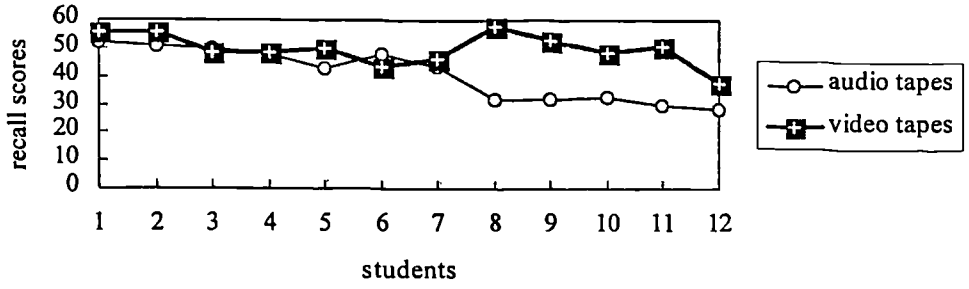
Fig. 21: Repetition of Key Words/Phrases in the A+V+



4.1.2.4 Effects of contextual support

In a sense, video tapes are embedded with mental images that associate with what is spoken and these images assist listeners in grasping the main ideas of the text. Hence, video-tape viewing can be considered as a text with contextual support. A comparison of the recall scores from audio tests (A+) to those from video tapes (V+) can illustrate the effects of the visual aids. Figure 22 displays the students (arranged according to A+V+ scores) against their recall scores acquired from the video sessions and audio sessions. Students with higher scores (Students #1-7) achieved a similar level of proficiency in both the audio and the video sessions. However, the students at the lower proficiency level benefited much more from video viewing over and above audio listening. This finding is also in accordance with many other research results, which showed that visual contextual cues significantly enhanced comprehension for foreign language learners at the beginning and intermediate proficiency levels (Mueller, 1980; Herron, Hanley, and Cole, 1995). Hudson's study (1982) had a similar result, except that he dealt with reading comprehension.

Fig. 22: Audio vs Video Tapes

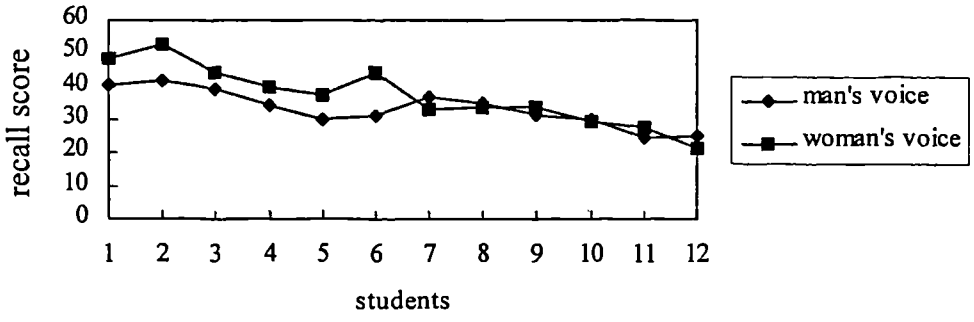


4.1.2.5 Effects of voice pitch (see Appendix 8)

As is commonly known, the female voice is on average higher in pitch than the adult male voice. Overall, quite a number of men speak in a glottal voice, very low in pitch. Therefore, the study divided the texts into two sections, one with the

sentences spoken by women and the other by men. These two sections were scored separately. Figure 23 indicates that the better-listening students, students # 1-6, performed better by listening to a female voice, while students with lower scores did not. In contrast, the gender of the voice did not make any difference for those at the lower level. This may be due to the fact that more advanced students might enjoy identifying more subtle aspects of the language which lower-level students might not be able to capture. Moreover, this cannot be attributed to individual differences in hearing ability. According to the medical records on file in the Chung Yuan Christian University Health Clinic, ten of the research subjects had been diagnosed as having normal hearing. (The records of Student 3 and Student 7 were missing.) The instrument used for diagnosis was a Micromate 304 Digital Audiometer. The check-up began with a sweep test at 1000 Hertz, followed by a higher pitch, and concluded with a pitch below 1000 Hertz. These health records demonstrated that all these students had normal hearing.

Fig. 23: Adult Male Voice vs Female Voice



Summary of the findings on factors discussed above

The results concerning the factors that contributed to the understanding of conversational English can be summarized as follows:

(1) The linguistic factors contributed differentially to the learners' understanding process. The learners' ability to catch semantic cues was found to be highly correlated with the overall listening comprehension performance. Their ability to

catch semantic-syntactic cues was moderately correlated with the overall listening comprehension performance. Furthermore, their knowledge of grammar and vocabulary was weakly correlated with the overall listening comprehension performance. In other words, students who scored high in grammar and vocabulary did not necessarily score high in their listening comprehension.

(2) Extra-linguistic factors, such as visuals, vocals, contextual support, speech rate, and repetition of the text, etc. were found to be capable of differentiating listening proficiency levels of individual students. Results indicated that students perform better with video tapes having fewer idea units than with audio tapes. In addition, it was suggested that the number of ideas per minute could be used as a consistent parameter in describing the speech rate. A greater number of repetitions assists learners in the construction of the meaning of an aural text, especially for students with higher scores. As for contextual support and voice pitch, students at the lower proficiency level benefited more from the visual nature of video tapes, on the other hand, students with better listening comprehension performed better when hearing a female voice. These findings shed light on issues confronting EFL educators in their attempts to help learners at different proficiency levels to attain different combinations of listening skills that could advance their listening competence.

4.2 Listening strategies

The study by O'Malley, Chamot, and others (1985) indicated that more strategies can be elicited through interviews with ESL students than through teachers or observers in the classroom. Therefore, in this study, the one-to-one interviews were arranged to identify the possible strategies the research subjects used in interpreting the text. The strategies were categorized and recorded as in the section 3.6.2 of Chapter Three. They are classified according to the categories of linguistic, cognitive and extra-linguistic (see Table 1 on pages 95-96).

In order to study the relationship between the use of strategy and the proficiency

levels, the research subjects had to be categorized and ranked according to some criteria. In this study, students were grouped with respect to their scores in protocol recalls. This is because the use of the immediate recall is usually accepted as a fairly valid assessment technique to measure the listening comprehension of second language learners. Students who had an average score of 48% or higher across the audio sessions or the video sessions were considered as good listeners. It turned out that four groups were identified: students who were good at both A and V (known as group C1, or equivalently Group A+V+), those who were poor at A, but good at V (known as group C2, or equivalently Group A-V+), and those who were poor at both A and V (known as group C3, or equivalently Group A-V-). Based on the differences within the A-V- group, the six students with the lowest-ranking scores were further divided into groups C3 and C4 (see Table 5).

Group(A+V+)	Group(A-V+)	Group(A-V-)	C4 Group(A-V-)
group C1	group C2	group C3	group C4
01yang	05lou	06liou	15huang
02hsu	08jang	07li	13jiang
03liau	09fan	12tsai	14shyr
04lu	10jia		
	11jian		
n=4	n=5	n=3	n=3

Table 5. Membership of Research Subjects in Listening Subgroups

Every student used a different combination of strategies among the thirty strategies listed in Table 2 on pages 97-98, which detailed all the data transcribed from the one-to-one interview tapes. All the data was categorized and placed on the horizontal axis. Four groups of different proficiency levels were placed on the vertical axis.

Analysis of the quantitative data collected from the interview records, the written protocol recalls and the Likert attitude questionnaire were conducted in 2 ways. Firstly, the differences among the four groups were compared by ANOVA followed by Bonferroni multiple comparison. Secondly, multiple stepwise regression was performed to identify the most effective strategies among the most frequently-used ones in listening comprehension. The results of the analyses were reported in two aspects: (1) to compare the four groups regarding their application of various categories of listening strategies, and (2) to identify the relationship between strategies used and good listening performance within a category of strategies.

4.2.1 Strategy use vs listening comprehension performance

Tables 6, 7 and 8 report the ANOVA results. Table 6 indicates that there was a significant difference among the four groups with respect to linguistic strategies. In ANOVA, p-value is usually used to indicate if the statistical test is significant or not. The decision criterion is that the p-value has to be smaller than a specific significance level, which is usually set at 0.05. In Table 6, the F test has a p-value of 0.02 thereby indicating a significant difference. Table 7 and Table 8 tabulate the results with respect to the use of cognitive and extra-linguistic strategies, respectively. In conclusion, these three tables demonstrate that there were differences in the strategies used by these four groups of students.

The descriptive statistics reported in Table 9 indicates that students of C1 used 5 linguistic strategies, 11 cognitive strategies and 6.75 extra-linguistic strategies on the average. C2 group students used fewer number of strategies in all aspects when compared to C1 group students. C3 and C4 students used even fewer strategies on the average. It is interesting to notice that the 4 listening proficiency groups demonstrated a decreasing gradation in the listening comprehension performance. In other words, students who performed better on listening comprehension could manage a greater number of strategies simultaneously. This finding confirms results from

Analysis of Variance Procedure

Source	DF	Sum of Squares	Mean Square	F Value	P
Model	3	32.53	10.84	5.00	0.02
Error	11	23.87	2.17		
Corrected Total	14	56.40			

Table 6. ANOVA table of the 4 groups of different listening proficiency with respect to the number of linguistic strategies used

Source	DF	Sum of Squares	Mean Square	F Value	P
Model	3	70.93	23.64	12.50	0.0007
Error	11	20.80	1.89		
Corrected Total	14	91.73			

Table 7. ANOVA table of the 4 groups of different listening proficiency with respect to the number of cognitive strategies used

Source	DF	Sum of Squares	Mean Square	F Value	P
Model	3	10.18	3.39	6.01	0.011
Error	11	6.22	0.57		
Corrected Total	14	16.40			

Table 8. ANOVA table of the 4 groups of different listening proficiency with respect to the number of extra-linguistic strategies used

		Linguistic strategies		Cognitive strategies		Extra-linguistic strategies	
Level of Cluster	N	Mean	SD	Mean	SD	Mean	SD
C1	4	5.00	0.00	11.00	0.82	6.75	0.96
C2	5	4.60	2.07	10.20	0.84	6.20	0.45
C3	3	3.67	1.53	9.0	1.00	5.00	1.00
C4	3	1.00	1.00	5.00	2.65	4.67	0.58

Table 9. Summary Statistics of Mean and Standard Deviation

previous studies (Murphy, 1987; Chamot, et al., 1989; Bacon, 1992a).

The follow-up test was performed by using Bonferroni multiple comparison, which compared the difference between all possible pairs of groups in terms of the strategies used. The symbol '***' denotes that the two groups under consideration used a significantly different number of strategies. Thus, Table 10 indicates there were significant difference between groups C1 and C4, and also between groups C2 and C4 regarding the number of linguistic strategies used. However, groups C1 and C2 are not significantly different from one another. Hence those that were better in listening comprehension performance used more linguistic strategies in comparison with those with lower performance. This finding is in accordance with the view that foreign language learners should develop a better foundation of linguistic knowledge (e.g. words, phrases, grammatical or syntactic rules) for future improvement.

There were three significance results in Table 11. It was observed that group C4 differed significantly from the other three groups (C1, C2 and C3) in the number of cognitive strategies used. Since all the research subjects were assumed to be cognitively and intellectually equivalent, this difference might be attributed to the inability to practise the strategies on a cognitive level by the C4 group who were not well equipped with basic linguistic knowledge.

Table 12 indicates that there was a statistical significant difference between groups C1 and C4 regarding the number of extra-linguistic strategies. This finding revealed that the better performance of Group C1 was attributable to the more consistent use of extra-linguistic strategies.

Cluster Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
C1 - C2	-2.77	0.40	3.57	
C1 - C3	-2.28	1.33	4.94	
C1 - C4	0.39	4.00	7.61	***
C2 - C1	-3.57	-0.40	2.77	
C2 - C3	-2.52	0.93	4.38	
C2 - C4	0.15	3.60	7.05	***
C3 - C1	-4.94	-1.33	2.28	
C3 - C2	-4.38	-0.93	2.52	
C3 - C4	-1.19	2.67	6.53	

Table 10. Bonferroni T tests for Variable: linguistic strategies
Comparisons significant at the 0.05 level are indicated by '***'.

Cluster Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
C1 - C2	-2.16	0.80	3.76	
C1 - C3	-1.37	2.00	5.37	
C1 - C4	2.63	6.00	9.37	***
C2 - C1	-3.76	-0.80	2.16	
C2 - C3	-2.02	1.20	4.42	
C2 - C4	1.98	5.20	8.42	***
C3 - C1	-5.37	-2.00	1.37	
C3 - C2	-4.42	-1.20	2.02	
C3 - C4	0.40	4.00	7.60	***

Table 11. Bonferroni T tests for Variable: cognitive strategies
Comparisons significant at the 0.05 level are indicated by '***'.

Cluster Comparison	Simultaneous Lower Confidence Limit	Difference Between Means	Simultaneous Upper Confidence Limit	
C1 - C2	-1.07	0.55	2.17	
C1 - C3	-0.09	1.75	3.59	
C1 - C4	0.24	2.08	3.93	***
C2 - C1	-2.17	-0.55	1.07	
C2 - C3	-0.57	1.20	2.96	
C2 - C4	-0.23	1.53	3.30	
C3 - C1	-3.59	-1.75	0.09	
C3 - C2	-2.96	-1.20	0.56	
C3 - C4	-1.64	0.33	2.30	

Table 12. Bonferroni T tests for Variable: extra-linguistic strategies
Comparisons significant at the 0.05 level are indicated by '***'.

Summarizing the results from the multiple comparison results above, the highest-ranking listening group (C1) excelled themselves in all the three categories of listening strategies while the lowest-ranking group (C4) fell behind in all of them. In addition, cognitive strategies seemed to have more influence on Chinese students in progressing from less-skilled listeners to more-skilled listeners. This also confirms the view of O'Malley, et al. (1985) that beginning learners tend to use less cognitive strategies.

4.2.2 Effective strategies for good listening

The previous finding in Section 4.1.1 showed that students who scored high in grammar and vocabulary did not necessarily score high in their listening comprehension. In other words, students at the advanced level of grammar and vocabulary did not necessarily perform as well in their listening comprehension. Multiple stepwise regressions were used to find out which listening strategies facilitated higher scores in understanding based on protocol recalls.

Tables 13, 14 and 15 tabulate a stepwise regression for each of the three categories of strategies (i.e. linguistic, cognitive, and extra-linguistic). Thus strategies 1 to 9 served as the independent variables in Table 13, strategies 10-22 served as the independent variables in Table 14, while strategies 23 to 30 were the independent variables in Table 15. In all situations, the protocol recall scores that measured text understanding were used as the dependent variable.

In Table 13 on page 122, the regression analysis result indicated that four variables *operating English-Chinese translation processes word for word or phrase for phrase* (V2), *a tendency to rely on a vocabulary list in Chinese and English* (V6), *paying attention to the verb tense* (V4) and *attending to every word of the sentences* (V1) were selected into the final model under a significant level of 0.15. In Step 1, the variable *operating English-Chinese translation processes word for word or phrase for*

phrase variable (V2) accounted for 59% of the variance of the Understanding variable (R^2 =0.59, p≤0.0035). In Step 2, the combination of V2 and V6 together explained 78% of the variance of the Understanding variable. In Step 3, the variable V4 was also selected and the three variables in the model explained 85% of the variance of the dependent variable. The variable V1 was next selected in step 4, and no more variables satisfied the requirement to enter into the model. These 4 variables together could account for 89% of the variance of the Understanding variable. At the third section down of page 122, it was observed that the parameter estimates of variables V1 (*listening to each single word*), V2 (*operating English-Chinese translation word for word or phrase for phrase*), *and V6 (reliance on a vocabulary list with Chinese meaning*) were equal to -3.23, -4.58, and -2.92 respectively. In other words, these 3 variables had a negative influence on the dependent variable. This implied that for those whose understanding still remained on the word-bound level scored lower on the Understanding variable, thereby, indicating difficulty in grasping the general meaning of the text. In contrast, V4 (*paying attention to the verb tense*) had a parameter estimate of 5.04. This implied that the better the application of the verb tense strategy the higher the score on the general meaning of the text as measured by the *Understanding* variable.

Stepwise Procedure for Dependent Variable-Understanding

Step 1	Variable V2 Entered	R-square=0.59		c(p) = 11.03	
	DF	Sum of Squares	Mean Square	F	P
Regression	1	217.27	217.27	14.36	0.0035
Error	10	151.27	15.13		
Total	11	368.54			
Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	47.57	1.30	20369.00	1346.51	0.0001
V2	-9.83	2.59	217.27	14.36	0.0035
Bounds on condition number:		1,	1		

Table 13. (continued)

Step 2	Variable V6 Entered		R-square=0.78		c(p) = 4.13	
	DF	Sum of Squares		Mean Square	F	P
Regression	2	288.02		144.01	16.10	0.0011
Error	9	80.52		8.95		
Total	11	368.54				

Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	49.77	1.27	13802.29	1542.72	0.0001
V2	-8.73	2.03	165.01	18.44	0.0020
V6	-4.95	1.76	70.75	7.91	0.0203

Bounds on condition number: 1.04, 4.15

Step 3	Variable V4 Entered		R-square=0.85		c(p) = 3.18	
	DF	Sum of Squares		Mean Square	F	P
Regression	3	311.48		103.83	14.56	0.0013
Error	8	57.06		7.13		
Total	11	368.54				

Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	47.03	1.89	4423.80	620.20	0.0001
V2	-6.53	2.18	64.03	8.98	0.0172
V4	3.56	1.97	23.46	3.29	0.1073
V6	-4.13	1.64	45.40	6.37	0.0356

Bounds on condition number: 1.625, 12.75

Step 4	Variable V1 Entered		R-square=0.89		c(p) = 3.05	
	DF	Sum of Squares		Mean Square	F	P
Regression	4	328.42		82.11	14.33	0.0018
Error	7	40.12		5.73		
Total	11	368.54				

Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	46.22	1.76	3968.01	692.32	0.0001
V1	-3.23	1.88	16.94	2.96	0.1292
V2	-4.38	2.32	20.41	3.56	0.1011
V4	5.04	1.96	37.93	6.62	0.0369
V6	-2.92	1.63	18.42	3.21	0.1162

Bounds on condition number: 2.115, 28.62

All variables in the model are significant at the 0.1500 level.
No other variable met the 0.1500 significance level for entry into the model.

Summary of Stepwise Procedure for Dependent Variable Understanding

Step	Variable Entered	Variable Removed	Number In	Partial R^2	Model R^2	c(p)	F	P
1	V2		1	0.59	0.59	11.03	14.36	0.0035
2	V6		2	0.19	0.78	4.13	7.91	0.0203
3	V4		3	0.06	0.85	3.18	3.29	0.1073
4	V1		4	0.05	0.89	3.05	2.96	0.1292

Table 13. Multiple Stepwise Regression
of various linguistic strategies on the understanding variable

Table 14 on page 125 indicates that V20 (*making an inference between what is known and what is unknown to the listener* variable) explaine 50% of the variance of the *Understanding* variable ($p \leq 0.0099$). When V17 (*inferring meaning between words or phrases*) entered into the model, the percentage of variance explained up to 79% ($p \leq 0.008$). Therefore, so far as the cognitive strategies were concerned, the ability to infer meaning between words or phrases, and the ability to construct connection between newly learned knowledge and previous knowledge were more effective for good listening. However, beginning learners tend to have difficulty using cognitive strategies, which are more abstract. They begin to use more abstract strategies only after they have some mastery over the target language at the lexical, syntactic, semantic and pragmatic level (O'Malley, et al., 1985; Bacon, 1992; Vogely, 1995). Nevertheless, both variables V17 and V20 were more cognitively demanding than the other strategies. This finding suggested that TESOL educators should help learners to become more conscious of the importance of cognitive strategies. Some strategies in this group, such as, predicting, confirming, identifying participants & their relationship, etc., were very naturally performed in interpreting their first language. Thus they might be easily transferred to interpreting the second language. But V17 (*inferring meaning between words or phrases* variable) and V20 (*making inference between what is known and what is unknown to the listener* variable) could be two strategies that required extra effort in training before they could be automatically applied.

Table 15 indicates that V30 (*having a positive attitude towards English learning*) was the first variable selected into the model. It accounted for 47% of the variance of the *Understanding* variable. The only other variable selected was V23 (*using the repeated words or phrases*), which together with V30 explained 63% of the variance of the dependent variable. These parameter estimates were all positive. Thus a more positive attitude towards English learning would be associated with the better performance in understanding. This finding supports what Vogely said in his study:

'The learning process can be guided, influenced, enhanced, or stifled by the classroom and the instructor, but the bottom line is that learning is a heuristic process that begins and ends with the individual learner' (1995). Certainly, the importance of the attitude of the learners cannot be overemphasized.

As for the effect of repetition, the result here conformed to those from other studies that illustrated the positive effects of repetition on listening comprehension (Chaudron, 1983; Cervantes, 1983; Lund, 1991). However, the effect of the variable V23 (*using repeated words or phrases*) was further substantiated by the data collected from the interview records in this study. Listeners who used repeated words or phrases more consciously performed better in listening comprehension.

Stepwise Procedure for Dependent Variable-Understanding

Step 1	Variable V20 Entered		R-square=0.50	c(p) = 13.83	
	DF	Sum of Squares	Mean Square	F	P
Regression	1	184.96	184.96	10.08	0.0099
Error	10	183.58	18.36		
Total	11	368.54			
Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	42.85	1.428	16525.10	900.16	0.0001
V20	9.07	2.86	184.96	10.08	0.0099
Bounds on condition number:		1,	1		
Step 2	Variable V17 Entered		R-square=0.79	c(p) = 3.03	
	DF	Sum of Squares	Mean Square	F	P
Regression	2	292.56	146.28	17.33	0.0008
Error	9	75.98	8.44		
Total	11	368.54			
Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	33.07	2.91	1093.62	129.55	0.0001
V17	11.00	3.08	107.60	12.75	0.0060
V20	7.84	1.97	134.25	15.90	0.0032
Bounds on condition number:		1.03,	4.13		

All variables in the model are significant at the 0.1500 level.
No other variable met the 0.1500 significance level for entry into the model.

Summary of Stepwise Procedure for Dependent Variable-Understanding

Step	Variable Entered	Removed	Number In	Partial R^2	Model R^2	c(p)	F	P
1	V20		1	0.50	0.50	13.83	10.08	0.0099
2	V17		2	0.29	0.79	3.03	12.75	0.0060

Table 14. Multiple Stepwise Regression
of various cognitive strategies on the understanding variable

Stepwise Procedure for Dependent Variable-Understanding

Step 1	Variable V30 Entered		R-square=0.47	c(p) = 4.11	
	DF	Sum of Squares	Mean Square	F	P
Regression	1	172.25	172.25	8.77	0.0142
Error	10	196.29	19.63		
Total	11	368.54			
Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	36.65	3.13	2685.71	136.82	0.0001
V30	10.17	3.43	172.25	8.77	0.0142
Bounds on condition number:		1,	1		

Step 2	Variable V23 Entered		R-square=0.63	c(p) = 2.49	
	DF	Sum of Squares	Mean Square	F	P
Regression	2	230.93	115.46	7.55	0.0119
Error	9	137.61	15.29		
Total	11	368.54			
Variable	Parameter Estimate	Standard Error	Type II Sum of Squares	F	P
INTERCEPT	34.27	3.02	1969.97	128.84	0.0001
V23	4.75	2.43	58.68	3.84	0.0818
V30	11.12	3.07	200.80	13.13	0.0055
Bounds on condition number:		1.03,	4.10		

All variables in the model are significant at the 0.1500 level.
No other variable met the 0.1500 significance level for entry into the model.

Summary of Stepwise Procedure for Dependent Variable-Understanding

Step	Variable Entered	Removed	Number In	Partial R^2	Model R^2	c(p)	F	P
1	V30		1	0.47	0.47	4.11	8.77	0.0142
2	V23		2	0.16	0.63	2.49	3.84	0.0818

Table 15. Multiple Stepwise Regression
of various extra-linguistic strategies on the understanding variable

Summary of the findings on strategies

This study examined the relationship between the strategies used and learners' performance in listening comprehension on recall tasks. The results showed that student groups with different levels of listening proficiency used different numbers of strategies in listening comprehension. The highest-ranking group were able to exercise a greater number of strategies in all three categories of strategies: linguistic, cognitive and extra-linguistic. Furthermore, the most effective strategies within each category had been identified by the stepwise regression method. In the linguistic category, a word-bound habit, such as, listening to each single word, translating word for word or phrase for phrase from English into Chinese, or relying on a vocabulary list with Chinese meaning in it, would inhibit listeners from a positive understanding of the message. Yet attention to verb tense was found to have a positive effect on good listening. In the cognitive category, the ability to infer meaning between words or phrases, and the ability to connect what is known to what is new were the two most effective strategies for better understanding. In the extra-linguistic category, a positive attitude, never giving in easily or requesting all sorts of help from the more-proficient learners had a positive influence on performance. Additionally, conscious use of the repeated words in the text could also enhance better understanding of the text. The findings in this part of the study suggested that TESOL educators should help learners develop listening strategies that are most effective for them. After learners have acquired some aspects of linguistic knowledge, strategy training ought to include more cognitively demanding strategies. Furthermore, the affective factors for foreign language learning cannot be neglected. Thus, encouragement should never be considered as optional.

4.3 Model development

Based on all the results above, this study approached the window of time during which memory associations were being formed during the language processing. This study was in a position to launch a listening comprehension model that explained the

interpretative behavior of Chinese EFL learners at the college/university level.

Since the model is devised for Chinese learners of English who have little contact with native English speakers and whose first language has different phonological systems, rhythms, and tones, the model must be a relatively simple one. These EFL learners are usually well-educated, have adequate learning ability, and possess a basic capability for comprehending written English. This model must take their knowledge background into consideration. In other words, the model must be a holistic one. This model is presented in Figure 11 on page 101. It is constructed following the guidelines of the example models summarized in Chapter 2.

An overall introduction to the model is first presented as follows. Details about how each variable was selected will be explained in subsequent sections. Essentially, it is assumed that interpretation proceeds through an expanding activation mechanism in which activation at one level extends into the next higher level. The arrows in the diagram indicate how elements at the lower level of comprehension have an influence on the next higher level of interpretation. For example, at the first level, the diagram suggests that textual input (variable X1, e.g. vocabulary, grammar) and schematic knowledge (variable X2, e.g. the listener's knowledge of the setting, the participants, their relationships, and the topic) can influence the processing of idea units and the sequence of events in the listeners' minds. At the second level, the extent of underlying propositions being constructed (variable X3, e.g. the number of idea units), and the conceptual framework of the text (variable X4, e.g. the sequence of events) can have an influence on the level of understanding. In other words, a simultaneous interpretation of the connection between words, ideas and conceptual framework will lead to an overall understanding of the text (variable X5). Furthermore, the elements at the same level are activated simultaneously. At the first level, the lexical, structural, semantic and contextual components decipher the meaning concurrently. A similar phenomenon occurs at the second level. While the listeners aggregate

more underlying propositions, they also deal with the construction of the conceptual framework of the text. The behavior of the interpretative process is greatly affected by the values of the various parameters of the model. Thus, although the proposed model is a simplified version of reality, it accounts for all the effects of different variables at various levels of understanding.

Two procedures were used in an effort to validate the proposed model. The first one was by means of the Pearson correlation and the second one was by means of regression analyses.

Although linguistic, extra-linguistic, and cognitive factors are important in contributing to the understanding of spoken language, the present researcher has found that one can account for some major phenomena with the proposed model by focusing only on the linguistic and cognitive categories. The proposed model does not intend to include extra-linguistic factors due to the difficulty in quantifying the weight of non-linguistic factors (such as the speaker's intention in speech, gestures, etc.) in the comprehension of the oral messages (Rost, 1990). Also, the competence level of the research subjects has not reached the level of being able to detect certain critical non-linguistic elements contained in the utterances, such as the speaker's intention.

4.3.1 The development and validation of the model

The development and validation of the model were rather involved. The actual data collected in this study were related to such fundamental variables as vocabulary and grammar as measured in the MEPT, and setting, participants, etc. that were assessed in protocol recalls. Since there were so many fundamental variables, pre-processing was necessary to reduce the number of variables into a manageable size for incorporation into a parsimonious yet functional model. The processes in which the various types of fundamental variables were used to form variables *X1* to *X4* in the

proposed model will now be explained as follows.

I. Formation of variables *X1* and *X2*

Vocabulary, Grammar, Setting, Participants and their Relationships and *Topic* were the most fundamental variables in terms of listening comprehension. They represented the first level of the model (Fig. 11, p. 101). The strength of association among these factors were measured by the Pearson correlation coefficients. The correlation among *Vocabulary, Grammar, Setting, Participants and their Relationships* and *Topic* was tabulated in Table 16. The result indicated that the relationship between *Vocabulary* and *Grammar* ($r=.92$, $p\leq.0001$) is much stronger than those between *Vocabulary* and *other factors.* The strong association between *Vocabulary* and *Grammar* suggested that they were quite similar and should be grouped into a composite variable as *Vocabulary+Grammar*, and denoted by *X1*. On the other hand, the factors *Setting, Participants and their Relationships* and *Topic* were all related to the same category of schematic knowledge, it is also appropriate to combine them into a single parameter as *Setting+Participants and their Relationships+Topic*, and denoted by *X2*. The correlation between *X1* and *X2* was equal to 0.59, with a p-value of 0.0001 (see Table 17). This meant that *X1* and *X2* were moderately correlated. However, the nature of the variable *X1* (textual input) was quite different from *X2* (schematic knowledge). In addition since *Vocabulary*, a component of *X1*, was only weakly correlated with *Participants & their Relationship*, a component of *X2*, there were some good reasons for regarding *X1* and *X2* as being two separate variables. Thus, the elements at the first level of the model were determined to compose of the two variables *X1* and *X2*. In other words, as listeners decode a text, they rely on words they hear and grammar they know. Simultaneously, they utilize strategies to activate their knowledge concerning the conversation situation, the interlocutors and their relationship, and/or the topic. The information being processed is then passed to the next level.

Correlations	*Grammar*	*Setting*	*Parti. & Rel.*	*Topic*
Vocabulary	r=0.92	r=0.49	r=0.28	r=0.50
	(p≤0.0001)	(p≤0.0001)	(p≤0.0087)	(p≤0.0001)

Table 16. Pearson Correlation Coefficients
p. is the probability of a greater (r) for the test of H0:ρ=0
5 variables: Vocabulary, *Grammar, Setting, Parti. & Rel., Topic*
Parti. & Rel. = participants & their relationship

Correlations	Vocabulary +*Grammar* (*X1*)
Setting+Parti. & Rel.+Topic (*X2*)	r=0.59
	(p≤0.0001)

Table 17. Pearson Correlation Coefficients
p. is the probability of a greater (r) for the test of H0:ρ=0
2 variables: Vocabulary +*Grammar (X1), Setting+Parti. & Rel.+Topic (X2)*

II. Formation of variables *X3* and *X4*

Listening is more than just matching meaning to aural input. It is not merely a process of recognition and passive absorption. Listeners must, however, actively infer meaning from portions of the text which can be more quickly or more easily understood. Simultaneously, they must arrange the ideas into a conceptual framework, especially when the listening task was information loaded. The distinctive difference between the variables at the first level and those at the second level lies in the varying amount of cognitive requirement. The variables at the first level are comparatively less cognitively challenging while those at the second level are more mentally demanding. The previously mentioned result (see Section 4.2.2) supported the premise that the ability to infer meaning between words or phrases, and

the ability to construct connection between "what is known" and "what is unknown" were the most effective strategies for good listening. Based on the above consideration, variables X3 and X4 were chosen to make up the second level of the model.

The inference process occurs within an infinitely small time frame. It stands to reason that the greater the number of idea units listeners can grasp the better understanding they can achieve. Also the more complete conceptual framework listeners can construct the clearer concept about the text they can perceive. In other words, stepping into the second level, listeners undertake strategies to grasp as many idea units as possible and concurrently find some areas of focus or salience within the text, from where they can sequence the most important ideas or construct a conceptual framework under the pressure of a time limitation. The processed message is then passed to the next level of the model.

III. Processing and dependence of variables between level 1 and level 2

A multiple regression was performed to explain variable *X3* by *X1* and *X2*. The result is tabulated in Table 18 on page 135. The estimated regression equation was given by $X3=-0.0632+0.002\ X1+0.0529\ X2$. Both regression parameters were significant at ≤0.05 level, hence they were quite different from zero in the population. This implied that a higher proficiency in vocabulary and grammar and a higher speed in activating schematic knowledge had a direct influence on the capability to grasp a greater number of idea units.

Another regression analysis that attempted to explain *X4* by *X1* and *X2* is presented in Table 19. The estimated regression equation was given by $X4=-0.0978+0.002X1+0.1118\ X2$. Both regression parameters were significant at 0.01 level, hence they were also different from zero in the population. It implied that a higher proficiency in vocabulary and grammar and a higher speed in activating schematic knowledge had

a direct influence on the capability to construct a sequence of events.

Furthermore, to compare the weights of the different elements, one can examine equations 1-2 as follows:

$X3=-0.0632+0.002\,X1+0.0529\,X2$ *eq. (1)*

$X4=-0.0978+0.002X1+0.1118\,X2$ *eq. (2)*

The coefficients before the variables *X1* and *X2* are the regression weights of these two variables to the variables *X3* and *X4*. The coefficient before *X2* in eq. 2 is greater than that before *X2* in eq. 1 (0.1118 > 0.0529). It implied that the influence of the schematic knowledge factor on the construction of the conceptual framework (*X4*) was greater than the ability to grasp the number of idea units (*X3*). This result was explicable within the sample group because all the students are well-educated university students. While processing the oral input, these EFL students were prone to construct their textual scope or framework by drawing upon their schematic knowledge promptly. For those who have not developed a good knowledge of linguistic information, a reliance on schematic knowledge is even more necessary (Murphy, 1987; Lund, 1991; Hayasshi, 1991). The result agreed with the importance of including 'using background knowledge' in models of listening comprehension in an EFL context (Martin, 1982; Nagle and Sanders, 1986; Anderson and Lynch, 1988; O'Malley, et al., 1989; Rost, 1990).

There is no doubt that the *schematic knowledge* variable is an effective factor for successful listening in the sample group. The existing research results on second or foreign language learning (Labov, W and D. Fanshel, 1977: 82; Laviosa, 1991; Bacon, 1992b; Vogely, 1995) also support the premise. That is, most of the information that needs to be interpreted is already stored in the listener's structure of shared knowledge and not in the listening materials. However, the present researcher's analysis further suggested that it was not only the schematic knowledge but also the higher speed in activating the prior knowledge which made a difference in listening performance. This finding raises several questions. Considering the subjects' similar education

background or topic familiarity, how can we explain such a difference? Is speed related to the contextual inferring ability? (i.e. the ability of subjects who guess at meaning or complete missing ideas or draw conclusions on the main idea or the meaning of unknown linguistic information in the context) Is speed related to the different I. Q. of the listeners? Samuel (1984) and Beatty and Payne (1984) claimed that listening comprehension was dependent, in part, upon an individual's level of cognitive complexity. Although the subjects were screened by the National Taiwan Universities/Colleges Entrance Exam and they were considered to be cognitively and intellectually equivalent, a minimal difference in I.Q. could be big enough to make a difference in listening comprehension. Therefore, even if the listening tasks in the present study were not as abstract as a formal academic lecture, a better performance could be related to better contextual inferring ability and intelligence of the EFL learners. Evidence from a more extensive study in this area is needed to verify this finding.

IV. Processing and dependence of variables between level 2 and level 3

A regression analysis was performed to explain *Understanding (X5)* based on the 2 variables *X3* and *X4* in the second level of the model (see Table 20). The result indicated that the *X3* variable ($p \leq .0001$) was an effective factor in predicting *Understanding (X5),* but the effect of the *X4 variable* on *Understanding* was not significant ($p \leq .8103$). However, text structure is supposed to assist in making inference. Previous studies (Sticht, et al., 1974; Meyer, 1975; Smiley, Oakley, Worthen, Campione & Brown, 1977; Kintsch & van Dijk, 1978; Englert & Hiebert, 1984; Walters & Wolf, 1986; Carrell, 1984, 1985, 1989, 1992; Chen, 1993; Hsieh, 1995) also suggested that the awareness or consciousness of text structure (*X4*) facilitated comprehension. Yet, the findings in this study seemed to contradict their suggestions. This seeming difference can be explained by a Pearson correlation analysis which measured the strength of the relationship between *Ideas (X3)* and *Sequence (X4).* Table 21 reports that *Idea (X3)* was highly correlated with *Sequence*

Dependent variable: *no. of idea units (X3)*

Variable	DF	Parameter Estimate	Standard Error	Probability
Intercept	1	-0.0632	0.0655	0.3373
X1	1	0.0020	0.0005	0.0001
X2	1	0.0529	0.0271	0.0544

Table 18. Regression of *no. of idea units (X3)* on *vocabulary +grammar (X1)* and *setting + participants & relationships + topic (X2)*

Estimated regression equation:

$X3=-0.0632+0.002X1+0.0529X2$ *eq.(1)*

Dependent variable: *sequence of events (X4)*

Variable	DF	Parameter Estimate	Standard Error	Probability
Intercept	1	-0.0978	0.0847	0.2511
X1	1	0.0020	0.0006	0.0014
X2	1	0.1118	0.0351	0.0020

Table 19. Regression of *sequence of events (X4)* on *vocabulary +grammar (X1)* and *setting + participants & relationships + topic (X2)*

Estimated regression equation

$X4=-0.0978+0.002X1+0.1118X2$ *eq.(2)*

Dependent variable: *understanding (X5)*

Variable	DF	Parameter Estimate	Standard Error	Probability
Intercept	1	1.5438	0.6984	0.0297
X3	1	100.2902	2.9784	0.0001
X4	1	0.5499	2.2843	0.8103

Table 20. Regression of *understanding (X5)* on *ideas (X3)* and *sequence (X4)*
Estimated regression equation:
X5=1.5438+100.2902X3+0.5499X4 eq.(3)

(X4) (r=0.84, p≤0.0001). The strong correlation leads to a multicollinearity problem when both *X3* and *X4* were concurrently evaluated in the regression equation. On the verbal level, this might be explainable by saying that well-educated participants were able to construct the sequence of the events and to grasp the ideas from the text at the same time. To resolve the multicollinearity problem, two multiple regressions were performed with *(X3)* and *Sequence (X4)* as separate independent variables. The results are presented in Tables 22 and 23 respectively. Table 22 shows that X3 was an effective factor in predicting comprehension, and the estimated regression equation was equal to *X5*=1.8171+100.0102*X3*. Table 23 shows that X4 was also an effective factor in predicting comprehension, and the estimated regression equation was equal to *X5*=7.3719+65.3157*X4*. These equations support the predictability of the *Idea* parameter and the *Sequence* parameter on *Understanding* at the significant level of ≤0.05. These findings also confirmed many research studies, which showed the importance of 'using inferencing' to grasp underlying propositions and to construct text structure for successful listening (Schlesinger, 1968; Bransford, et al., 1972; Kess, 1976; Sticht, et al., 1974; Meyer, 1975; Smiley, et al., 1977; Kintsch & van Dijk, 1978; Defilippis, 1980; Carrell, 1984; O'Malley, Chamot, and Kupper, 1989; Laviosa, 1991; Vogely, 1995).

Correlations	No. of Idea Units (*X3*)
Sequence of Events (*X4*)	r=0.84 (p≤0.0001)

Table 21. Pearson Correlation Coefficients
p. is the probability of a greater (r) for the test of H0:ρ=0
2 variables: *No. of Idea Units (X3), Sequence of Events (X4)*

Dependent variable: *understanding (X5)*

Variable	DF	Parameter Estimate	Standard Error	Probability
Intercept	1	1.8171	0.7261	0.0142
X3	1	100.0102	1.7281	0.0001

Table 22. Regression of *understanding (X5)* on *no. of idea units (X3)*
Estimated regression equation:
X5=1.8171+100.0102X3 eq.(4)

Dependent variable: *understanding (X5)*

Variable	DF	Parameter Estimate	Standard Error	Probability
Intercept	1	7.3719	2.5201	0.0044
X4	1	65.3157	4.5894	0.0001

Table 23. Regression of *understanding (X5)* on *sequence of events (X4)*
Estimated regression equation:

X5=7.3719+65.3157X4 eq.(5)

Furthermore, one could explore the comparison between the regression weight of the *Idea* variable (*X3*) with the *Sequence* variable (*X4*) by examining equations 4 and 5. The coefficient of *X3* was greater than that of *X4* (100.0102>65.3157). It implied that the influence of the number of idea units on comprehension was greater than that of the sequence of events on comprehension. From this, for this group of EFL learners, one could deduce that the strategy of grasping a number of idea units was more effective than the strategy of constructing the sequence of events in comprehending the text. These research subjects are more skilled in extracting underlying propositions from the utterances than in using text structure to organize their comprehension and recall. This finding confirms Chaudron and Richards' statement (1986): In general, Chinese EFL learners are weak at making use of the logical connectors between the ideas or inexperienced in recognizing signals or markers of text organization within the passages. This identification of the interrelationship between the main ideas and details aids them in assigning more reliable meanings to the message which is being processed. This might be one of the areas that requires greater teaching emphasis for them. As research on text comprehension has shown foreign language comprehension failure may be due partly to the readers' or listeners' lacking the appropriate formal schema required by the text, over and above their proficiency of the target language (Carrell, 1984).

In sum, the analysis results strongly supported that both *Ideas (X3)* and *Sequence (X4)* were effective factors in predicting listening comprehension, thereby lending support to the model proposed in this study.

Summary of the development of the Model

A 3-level non-linear listening comprehension model of Chinese learners has been proposed in this study. This model suggested that basic understanding, the variable at the highest level, was affected by the 2 variables in the middle level, namely, ideas and their sequence in the text. Capturing a number of the ideas and their sequences

could, in turn, be affected by the construction of the linguistic cues in the text (i.e. vocabulary and grammar) as well as the background knowledge and previous experiences (i.e. setting, participants and their relationship, and the topic). Multiple regression analysis was performed to validate the model. Two important findings were observed. Firstly, a higher speed to activate schematic knowledge and the ability to grasp a greater number of idea units were the two most predominant factors for good listening for the present sample. Secondly, an inadequacy or inexperience in implementing the sequence of content to construct a framework of the message would lead to a failure in the ultimate interpretation.

Chapter 5 Discussion and Conclusion

5.1 The present study

Understanding spoken language is no simple matter. Listening is not just a process of 'hearing'. It is a skill which integrates both linguistic knowledge (covering phonology, lexis, syntax, semantics, etc.) and broad social knowledge. It is understandable therefore that EFL learners may suffer most from being unable to keep up with native English speakers when suddenly exposed to an English speaking interaction. Fortunately, research proves that listening is a skill which can be taught and there are ways of improving listening abilities. This has been proved in both studies of first language acquisition and foreign language learning.

It is believed that an understanding of the strategies and processes of listeners would have a direct influence on the improvement of ESL/EFL listening training. How the students learn and what the students learn is dependent on the EFL teacher's knowledge of the nature of listening comprehension itself. If teachers are aware of the factors and strategies contributing to the understanding of the spoken language and of the processes their students engage in when interpreting oral English, then they would be in a better position to develop and deliver an improved instructional program with well-defined objectives. English language education in Taiwan is characterized by a lack of training in listening comprehension. This study provides data which could be used by EFL teachers in developing and improving their English instruction.

This study is an attempt to investigate factors and listening strategies that Taiwanese university students used to solve listening comprehension problems. Apart from finding the elements sampled students have used, it aims to find the relationship between actual strategy use, listening comprehension, and the causes of success or failure. More importantly, the data collected has been analyzed in an effort to validate a proposed model of Chinese learners' listening strategies and processes in

decoding the spoken language in an EFL context. The results strongly support the fact that the model is workable.

5.2 Main findings

There are several important findings derived from this study. They are: (1) The linguistic factors contribute in varying degrees to the importance of the learners' understanding process. The learners' ability to catch the semantic cues is highly correlated with their overall listening comprehension performance; their ability to catch the semantic-syntactic cues is moderately correlated with their overall listening comprehension performance; their knowledge of vocabulary and grammar is weakly correlated with their overall listening comprehension performance. (2) Extra-linguistic factors, such as visuals, vocals, contextual support, speech rate, and repetition of the text, are also of importance, being capable of differentiating listening proficiency levels of individual students. The number of ideas per minute is a consistent parameter in describing the speech rate. Results indicate that students perform better with video tapes which have fewer idea units, than with audio tapes. A greater number of repetitions assists learners in the construction of the meaning of an aural text, especially for students with higher scores. As for contextual support and voice pitch, students at the lower proficiency level perform better from the visual aids on video tapes, while students with better listening comprehension perform better on hearing a female voice. (3) The group of students who performed the best on listening comprehension are able to exercise a greater number of strategies and demonstrate higher frequencies of using the 3 major categories of strategies (i.e. linguistic, cognitive and extra-linguistic). The most effective strategies within each category have been identified. In the linguistic category, a word-bound habit, such as, listening to each single word, translating English into Chinese word for word or phrase for phrase, or relying on a vocabulary list with Chinese meaning in it, will inhibit listeners from a good understanding of the message. Attention to verb tense is an effective strategy for good listening. In the cognitive category, the ability to

infer meaning between words or phrases and the ability to connect what is known to what is new are the two most effective strategies for better understanding. In the extra-linguistic category, a positive attitude, never giving in easily or requesting all sorts of help from the more proficient can have a positive effect on performance. (4) A non-linear listening comprehension model explaining the interpretative process of Chinese EFL students is proposed. This model reveals two important findings. Firstly, a higher speed in activating schematic knowledge and the ability to grasp a greater number of idea units are the two most predominant parameters for good listening in the sample group. Secondly, the inadequacy or inexperience in using the strategy of implementing the sequence of content to construct the framework of the message leads to a failure in the ultimate interpretation.

5.3 Discussion

Some of the findings of this study confirm what has been concluded from previous studies. They confirm the importance for learners to develop a greater number of strategies (Murphy, 1987; Chamot, et al., 1989; Bacon, 1992a) and more cognitive-demanding strategies for better listening (O'Malley, et al., 1985; Bacon, 1992; Vogely, 1995), as well as the impact of extra-linguistic factors such as repetition of the text (Lund, 1991; Chaudron, 1983; Cervantes, 1983), visual cues (Mueller, 1980; Hudson, 1982; Rost, 1989; Herron, et al., 1995) or affective factors to ease listening problems (Vogely, 1995). They also reinforce the need to strengthen the learners' awareness of textual structure in order to build hierarchies of content (Sticht, et al., 1974; Meyer, 1975; Smiley, et al., 1977; Kintsch & van Dijk, 1978; Carrell, 1984; Chaudron and Richard, 1986; Chen, 1993; Hsieh, 1995). One specific listening strategy identified in this study which has never been included in other studies is attention to the verb tense. This finding is extremely meaningful for Chinese EFL learners due to the difference in the tense usage in Chinese and English language use. English verbs are characteristic of action and marked tense. Semantically they reflect the time when the action takes place, and because of this semantic function, verb tense is an

important element in message interpretation. Since verbs in the Chinese language do not indicate the time, it requires extra cognitive work for Chinese EFL learners to realize the difference. Therefore, developing and raising awareness of verb tense is very important for them in learning English.

The findings concerning listening strategies identified in this study shed some light on the causes of non-understanding and/or mis-understanding in cross-linguistic situations. According to Ausubel (1967), a learner relies on what he/she already knows when confronted with a new learning situation. Learners of a second or foreign language begin relying on their ability to analogize, systematize, and regularize the target language data to which they are exposed immediately upon beginning to learn the new language. As a result of their lack of familiarity with the new linguistic system, they rely extensively on their previous knowledge and experience with their native language for support (Taylor, 1975). For Chinese EFL learners, it is more commonly found that they pay equal attention to all the words of the sentences in their language reading or listening. This habit had been formed by their previous language experiences. Using learning-Chinese-as-the-first-language as an example, Classic Chinese, Wen-yen-wen, is still pervasively taught in the course of Chinese language learning. In these classes, teachers explain and translate the whole wen-yen-wen text word by word and sentence by sentence (Chi, 1996). Field (1984) pointed out that such teaching beliefs have been rooted in Chinese culture and even further developed and transferred into teaching English as a foreign language in Chinese communities. In this situation, the Chinese students' first language experience may present a hindrance to English learning. Therefore, upon hearing English utterances listeners focus on individual words rather than on an entire message or larger units of it. They become so overly tense and preoccupied when they have missed quite an amount of incoming information that they continue to miss further portions of the message and become hopelessly lost. Moreover, they also lack the skills to fill in what they may have missed and to deduce the whole of a

message from fragments of it. Only later with increased proficiency in the target language can they rely proportionately less frequently on their native language knowledge and more frequently on their ever-increasing knowledge of the target language and then they cope with the new language directly.

The findings of this study have repeatedly stressed the importance of grasping idea units between utterances. For example, the results indicate that all linguistic factors contribute in varying degrees to the importance of the learners' understanding process; however, the learners' ability to catch the semantic cues is the strongest contributor whereas influence of their knowledge of vocabulary and grammar is not so strong. As to the identification of effective strategies for better understanding, the ability to infer meaning between words or phrases and the ability to connect what is known to what is new are the two most effective strategies. In addition, the proposed model reveals that the ability to grasp a greater number of idea units is one of the two most predominant parameters for good listening. These findings consistently suggest that the nature of the listening comprehension is not passive absorption and that listening is an essentially inferential process based on a perception of semantic representation of the aural text. To comprehend spoken language, the main effort on the part of the listener should be focused on extracting the underlying propositions between the semantic relations. Rost (1990: 68) stated,

> Lexical items may be unambiguous in a specific discourse and the speaker of the items may indicate the semantic relations between the lexical items used, but the necessary association of the ideas by the listener is not entirely predicted from formal features of the lexical items or the grammar of the utterance. Rather than having their meaning determined by formal semantic relationships, propositions are controlled by the links that the text user assigns to the elements they contain. Propositional content must then be constructed by the listener through text-based inferences, rather than fully recovered from the text.

As explained in Chapter 2.1.2.1 the speech rate is one factor which influences comprehension. It is impossible for a newly admitted university freshman in Taiwan to be able to comprehend anything in English when it is presented at normal rates. It is imperative for EFL teachers to know the textual level of difficulty before the material is presented in the class. With students at the beginning stage, they need a relatively larger amount of processing capacity and time. If the rates of the speech are beyond their competency levels, they would find the speech flowing much faster than they can handle. As a result, their information-handling capacity can easily become overloaded and they are likely to give up. In contrast, if learners are provided with appropriate levels of challenge, they are likely to experience meaningful success. Therefore, texts must contain sufficiently 'comprehensible' surface language, but at a slightly higher level of information than their present linguistic competency can cope with.

This study suggests that the number of ideas per minute is used as a consistent parameter in describing the speech rate. The speech rate has been interpreted as words per minute in previous studies (Steers, 1945; Pimsleur, Hancock, and Furey, 1977; Kelch, 1985; Griffiths, 1992; Ko, 1992), but unfortunately, different researchers used a different number of words to define the norm for slow, average or fast rate, making it difficult to compare findings and draw conclusions. The suggested use of the speech rate in terms of idea units per minute is a modification to measure the extent of comprehensibility for different kinds of aural texts. This finding contributes to the selection of teaching materials at the level of appropriate difficulty which gives learners a reasonable probability of success and encourages perseverance.

Another finding related to better listening is the speed effects of the shorter retrieval time which a listener takes to activate necessary memory links and gain information from his/her long term memory. Much research has been conducted on the subject

of the relationship between schematic knowledge and comprehension. The role of activating semantic context in listening performance has also been reported. However, very few scholars have taken into consideration the speed to activate prior knowledge. This finding re-addresses a need of good practice and familiarity with listening information processing. In addressing the question of speed of word access, the most widely accepted model, the 'logogen' model of Morton (1969; 1979), asserts that the more often a lexical item is perceived the more quickly it will be accessed during comprehension. The threshold for recognizing a word is lowered each time it is encountered. With sufficient amount of practice the listener grows more experienced and quicker in forming associations and responding with the input items.

Another important contribution of this study concerns the development of a listening comprehension model for a group of EFL learners. As discussed in Chapter 3.5.4 and Chapter 3.5.5, the two most important methods used for the collection of data are written protocol recalls and verbal recalls in one-to-one interviews. Prior to this study both methods had been successfully used to investigate the understanding processes. Since the model has been built on these two combined methods and the analysis of the data, the present researcher has confidence that the proposed model gives a direct trace of the processes of thought formation and provides a valuable contribution about what EFL learners do with listening stimuli. It is a model which explains the interpretative behaviours of this EFL group and demonstrates the relative weight between elements and levels.

Indeed, most of the earlier studies on listening did not go beyond the identification of frequency of occurrence of listening strategies. No previous studies deal with the development of a listening comprehension model with the support of empirical data on a group of EFL subjects. No existing models of listening comprehension have used subjects who are living in a poor English input environment. Therefore, their models are inappropriate to this group of Chinese EFL learners. The proposed

model varies from the existing ones in three key features. Firstly, it points out the fact that the actual listening process begins with the use of schematic knowledge and contextual cues as raw speech is taken in when these brilliants are tuning in their ears. Accordingly, the variable concerning setting, participants and their relationship, and topic (X2) is included as a component at the first level of the model. Secondly, it emphasizes the contribution of text structure (X4) in making inferences during the verbal interpretative processing at the second level of the model, which necessitates a higher cognitive requirement. Although the role of inferring ability has been recognized in listening comprehension, no existing models of listening comprehension, except Clark and Clark's model (1977) and Rost's model (1990), have clearly included the construction of the conceptual framework of the text in their description of listening comprehension process. Moreover, Clark and Clark's model was not for listeners in an EFL context. Thirdly, all the existing models have identified their elements affecting comprehension of spoken language, but the present model is the only one which tries to compute and weigh the degree of the relative importance between elements and levels. To conclude, this model is parsimonious enough to be easily comprehensible and yet functional enough to explain important issues in listening interpretation in an EFL context. What is important is that it presents a new perspective which opens a new door to the mental world of listening comprehension. Pedagogically, the findings about the elements and their relationship in the process of responding to a listening task may provide insights which EFL teachers can refer to in structuring their instructional program.

The findings in this study appear to justify the following conclusions.

1. Students who score high in vocabulary and grammar do not necessarily score high in their listening comprehension.
2. The repetition of the text does facilitate listening comprehension.
3. The number of ideas per minute is suggested as one of the criteria for measuring the textual difficulty.

4. An appropriate level of textual difficulty is a necessary component for learners to feel challenged enough to experience success and to achieve effective listening.
5. Poor listening learners attempt to manipulate the English sound system and lexicon of the language by using their first language listening skills.
6. Poor listening learners focus on individual words rather than on larger units or the entire message. They lack the skills to deduce the whole of a message from bits and pieces of it.
7. Better listening learners are able to handle a greater number of strategies.
8. More cognitive-demanding strategies need to be incorporated in the listening training program.
9. Better listening learners have learned to pay attention to other aspects of the language except the text itself to resolve their listening problems.
10. The ability to grasp a greater number of idea units and a higher speed to activate prior knowledge are the two strongest predictors for better comprehension.
11. Awareness with the text structure of different genres of aural input helps listening comprehension.
12. Sufficient practice and positive attitudes towards language learning contribute to listening comprehension.

In summation, this study suggests that it is beneficial for both EFL teachers and learners to understand the nature of listening comprehension. In order to be able to understand better, learners have to be trained to improve their listening habits. They need to be helped to recognize their strategies, generate new ones and have a choice of using alternative ones. It is hoped that findings of this study could provide teachers and learners with a keener insight into the interpretative processes of Chinese EFL listener-learners. As a result, a more positive attitude to address listening problems could be developed and better solutions may be developed to facilitate ESL/EFL

teaching and learning.

5.4 Implications for language teaching

This study suggests that a good knowledge of factors, strategies, and the development of the model presented here is beneficial to English teachers as well as learners in an environment like Taiwan, China, or countries where students do not have much access to English outside the classroom. This section describes the pedagogical implications arising from the study.

Although instruction of grammar and vocabulary helps build up a basic foundation at the early stage of foreign language education, one must be aware that English teaching cannot continue involving nothing more than vocabulary and grammar development. The best training of vocabulary and grammar might make a good translator across two languages, but it is not enough to meet the demands of advancing listening comprehension.

This study finds that a greater speed at activating schematic knowledge and the ability to grasp a greater number of idea units are the two most predominant parameters for good listening. How can teachers help their students to strengthen the ability to grasp a greater number of idea units bearing in mind the pressure of time?

To raise sensitivity to stress and intonation is an area worthy of our effort in our teaching activities. English is a stress-timed language. Stress is one of the distinguishing features of spoken English. Stress determines to some extent the value of words, phrases, or sentences. In other words, there is a great deal of difference in the degree of importance between stressed and unstressed words, or between stressed and unstressed sentences. The stressed syllables in a sentence are the information-bearing units. They are louder, longer, more prominent in pitch and very precisely articulated. The unstressed ones are often heard as an acoustic blur

rather than a series of separate sounds. It is very difficult for students, particularly those whose native language is syllable-timed (e.g. Chinese), to start listening for the variation of stress. They tend to give the same amount of attention and value to each word of the sentence, which stands as a barrier to infer meaning between English words or sentences within the time limitation in listening comprehension.

Intonation is closely related to sentence-stress. The correlations of intonational form and meaning are distinctive and constant. They are recognized as such in each language (Cruz-Ferreira, 1987). Varying intonation can change completely the literal meaning of the words that the speaker is saying. For example, a fall on words like 'OK' or 'So' often serves to show that the speaker is about to change the subject. A rise on 'really' is a way of showing interest. A stress on different words in a sentence like 'John and I didn't steal your bike' could indicate that the speaker means different things. Students need not only to realize how intonation can alter meaning but also undergo a process of ear-training to become more sensitive to the variation of intonation.

Stress and intonation in the English language are critical in conveying meaning. An increased sensitivity to stress and intonation can accelerate the construction of word meaning and the identification of the relationship among ideas, which will prompt a more accurate understanding. For this reason work towards the building up of receptive phonological competence should be incorporated into normal teaching activities through the practice of significant examples of rhythm, stress and intonation.

Some misunderstanding or non-understanding can occur not only from the English language barrier but from the cross-cultural and social differences. One may understand everything in the message from sound, word groups, intonation, lexical meaning and so on, but fail to grasp a cultural reference and thus be totally confused. An example of this might be humour in different cultures. It is obvious that students

who have never seen or heard of a certain custom or culture will have difficulty with a message which depends on knowledge of the cultural information. Their previous life experience may cause them to make assumptions which do not apply to Western lifestyles. For example, one of our sampled students could not identify the role of a doctor in the V1 video tape just because he never thought that a doctor would play games with his patient, and another student had difficulty identifying the interviewees as students in the V3 video tape because American university students looked much older than Taiwanese university students. The inclusion of the provision to students of substantial socio-cultural knowledge about the target language in the course will shorten the gap between the knowledge of the listener and that required for understanding of the text.

Since L2 learners tend to employ familiar strategies which usually require little cognitive processing of the aural text (O'Malley, et al., 1985), it is vital for EFL teachers to help students to become more conscious of the importance of brain-function and socio-cultural strategies. This study suggests that for students at an intermediate level more teaching activities should be moved towards developing more cognitive-demanding strategies, such as meaningful parsing, contextual inferring, using background knowledge, notetaking, self-monitoring and selecting, etc..

Applying 'an instructional strategy of *semantic mapping*' in the classroom can be a good example of a more cognitively demanding activity. Semantic mapping is a kind of knowledge construction activity used as a way of representing main ideas and details in a visual/graphic form (Reutzel, 1985). The presenting process facilitates students' comprehension by triggering the brain to retrieve what is known about the topic. The procedure generally includes a brain-storming session in which students are asked to verbalize associations to the topic of stimulus words while the teacher is mapping the diagram on the chalkboard. This strategic instruction engages students in a mental activity of retrieving their prior knowledge to deduce a relationship

between words, phrases or ideas. Jau's experiment (1993) provides strong evidence of the significant effects practice has in making the connection between known and unknown words on the listening comprehension of college students at a freshman level in Soochow University, Taiwan. In her study, the experimental group of 35 students were given help by the teacher to apply semantic mapping in a two-month course while the control group of 29 students were taught by traditional methods. The findings indicate that a significant improvement was found between the pre-test and post-test participants in both vocabulary and listening in the experimental group, but a significant difference was only found in vocabulary in the control group. This indicates that traditional teaching methods are not of much help in listening comprehension, thus lending support to the effect of making a connection between prior knowledge and textual cues on listening comprehension.

It is profitable for EFL teachers to provide learners with aids to shift their attention onto the related units of information rather than isolated bits of information. Students can be supplied with contextual clues such as an outline sheet or visual aids before they listen to a passage so they can anticipate or predict what will be said, and they are listening in context and not just to individual words. For example, radio interviews or newscasts can be played to students who have been given several specific questions in advance which help them in their understanding of specific details. In addition, different genres of texts can be played to students who have been given an outline sheet which helps them in their discovering patterns of different genres.

Since the results of this study and those reported in other studies support the notion that knowledge of text structure aids listening comprehension, how best to instruct students in the use of text structure becomes an important consideration for the teaching of listening comprehension. Text structure specifies the logical connections in text, as well as the subordination of some ideas to others (Meyer, et al., 1980;

Englert and Hiebert, 1984). It is necessary to increase student sensitivity to different types of text structures so as to use textual organization to sort, classify, and label the incoming information which will help them to form good habits in extracting the major theme of a passage with the focus on the main events to the exclusion of non-essential information.

EFL teachers need to continuously investigate how to encourage growth in learners' comprehension ability so that students realize that they have a choice in the types of listening strategies they can use for improvement. Laviosa's study (1991) suggests that classroom teachers should help listeners develop strategies that are most effective for them as individuals to solve their listening problems. Oxford (1990) and Vogely (1995) assert that strategies will not be used automatically unless the students become conscious of why and how these strategies help. The 'why' means explaining the rationale behind the activities. The 'how' refers to the fact that students may not know exactly what is expected of them during the activity. Only when the learners are aware of what is needed to learn effectively are they likely to take steps to meet the challenge of practicing a task.

This study proves that better-listening students benefit more from repetition than poorer-listening ones. It seems obvious that for less-skilled listeners, short, simple messages with the minimum amount of necessary information are easier for understanding because they make less demand on the listeners in terms of information processing. However, spoken English is characterized with the feature of repetition, which helps listeners to grasp the ideas or to construct a structure of the text from the context. When EFL learners reach a certain level of proficiency, they can be helped to take advantage of using the repeated words or phrases in the text or to become more aware of the different uses of words, phrases, or sentences. They then learn to take more opportunities to grasp the important details which they have to use in whatever task they are performing.

Some listening tasks may require students to focus on non-verbal behavior such as facial expression, gesture, or body language, which may be supportive in decoding some linguistic features in the text. EFL teachers can help students use extra-linguistic clues in getting meaning across, for example, by selecting suitable video tapes, which contain numerous gestures or body language to reinforce what they are saying. Teachers could profitably play the tape through once or twice and see if the students can spot the extra-linguistic features. One suggested procedure could be as follows:

(1) Play the tape through once with the sound off.

(2) Ask the student to predict as much as they can about the verbal content of the extract from the visual images alone. This could involve guessing who the characters are, what they are talking about, what their attitudes are, etc.

(3) Encourage the students to give reasons for their answers on the basis of the setting, facial expressions, use of gesture, style of clothing, etc.

(4) Play the video through with the sound so that the students can check whether their predictions were correct.

This study indicates that better-listening students perform better when hearing the female voice than poorer-listening ones. This explains that lower-level students probably have not learned how to get help from other aspects of the language except the text itself. It is for this reason that the awareness activities for voice quality can be included in the course syllabus. For example, students can be helped to develop a feel for voice quality by the selection of tapes which have a number of distinctive voices in them, or to have a sense of the type of person they are listening to from clues in the speakers' voice. For example, they can be taught to have a sense of who is talking, young/old, fat/thin, co-operative/un-cooperative, confident/lack of confidence, strong/weak, well-educated/poorly educated, authoritative/soft.

All the research subjects suggested that both audio-tapes as well as audio-visual tapes are indispensable for a course of Listening Training in English. From the audio-tapes, much of the listener's effort is spent in sorting out the role relationships of the speakers, on the other hand, visual videos provide more, but not necessarily all of the relevant context. It is better for teachers to choose the texts which are somewhat beyond their present linguistic control, which gives the students room to develop their potential. Materials used in the classroom can be diverse but must be authentic starting from those topics of greater familiarity and personal concern and moving to those on more remote and abstract topics. The speech rate expressed in terms of the number of idea units can be used as a criterion to determine the level of the difficulty in choosing teaching materials.

EFL teachers can work together with their students to enhance their potential with an awareness of listening comprehension and inference processes. More process-oriented teaching activities should be integrated into the programme, such as, the immediate retrospective interview, in which students are asked to think about and talk about how they process aural stimuli and what strategies they adopt for the understanding of the oral text, or the protocol recall approach, in which students are asked to write down all the idea units that they can understand.

Recall protocol is not an easy task. In order to make sense of all oral input, students must trace back the relevant knowledge or their mental images or ideas stored in deep memory and then construct a representation of these incoming items in memory. They have to understand how to relate what is required by the recall writing task to the language input. They have to decide how much information to include and how to present that information. Finally, they have to produce the recall writing. To put it in another way, to accomplish this task requires decoding of the language input into thought, while simultaneously engaging the process of encoding the thought into words.

Such process-involved activities help students to have a better idea of their strengths and weaknesses so that they will feel more confident in their listening abilities, and then they will be more likely to apply those new strategies in their own time, long after they leave the classroom.

This study can be used as one successful example. At the end of the experiment in the study the sample students showed a positive attitude toward their participation in the study and they felt that their listening comprehension skills had improved under the experimental conditions. This feeling of making progress can be explained in two ways: (1) The students did the recall writings by remembering facts, details, and the overall organization of a text. This is not easy because there are time constraints in the use of memory. The time span over which actual comprehension and inference processes take place is usually called the working memory (Rost, 1994, p.70-71). When they were asked to do the repetition of listening to the text and then to revise their recall writing, they were artificially lengthening the span of their working memory in order to improve their recall. (2) The protocol recall, along with the follow-up immediate retrospective interview, enhances the identification of the listening inferential process and strategies of EFL learners. Students would never have considered how their understanding occurs although they would be aware that something was happening in their brain. They could not know what their problems or difficulties were although they knew that these existed. Having participated in the experiment, they came to realize some of the mental processes, and found delight in this discovery. Therefore, it is recommended that this model, the type of teaching materials and the concept be incorporated in the designing of ESL/EFL curricula.

5.5 Areas for improvement

A number of areas of this study could be improved. One of the concerns is that the subject sample is relatively small as explained in Chapter 3.2. Therefore,

generalizations of the findings are limited to EFL university students with a background similar to those of the research participants in this study, that is, only those university students who live in a limited English input environment and whose English proficiency level is among the 12 highest-scorers or among the 3 lowest-scorers in vocabulary and grammar from the Michigan English Placement Test. In order to apply the model in a wider range, investigations of the strategies and processes of a larger population of students are clearly needed.

There are other variables which have not been taken into account, but may influence the choice and use of the listening strategies, such as the gender difference, and the learners' past training background. Since sex differences have a great effect on the choice of language learning strategies (Oxford & Nyikos, 1989), the results of this study could have been affected by the sample composition which comprised one female and fourteen male students. In other words, the results of this study might differ with the samples. In addition, the subjects of this study were all engineering majors. Since the university major also has a strong effect on the selection of language learning strategies (Oxford & Nyikos, 1989), the results of this study might have been different with, for example, liberal arts majors.

5.6 Recommendations for future research

For those who intend to pursue further research in the area of EFL listening comprehension, it is recommended that the following issues might be addressed.

Firstly, the analyses through the model indicate that the strategy of grasping a number of idea units is more effective than the strategy of constructing the sequence of events in comprehending the text. A good explanation may be attributed to the learners' inexperience in sequencing the events from the aural text. Another possible reason is that the selected testing materials used in the study are topic-oriented conversation, in which ideas are not so well structured as those in academic lectures. Since listeners

use different strategies with different types of texts (Defilippis, 1980), future experiment could be undertaken with different genres of texts, for example, fairytales, narratives, the academic lectures, newscasts, etc. The results would produce more evidence identifying whether an individual' ability in constructing the conceptual framework is a dominant factor for a better performance in listening comprehension.

Secondly, since the design of this preliminary study proved workable in formulating a listening comprehension model of Chinese EFL learners in Taiwan, the same design should be equally effective for other groups of EFL learners in China, or even in other parts of East Asia. Similar research on other culture groups or different proficiency levels of EFL learners in a similar environment or by using different genres of listening testing materials would strengthen validating the model of listening strategies and processes of foreign language learners in an EFL context.

Thirdly, this study suggests that more cognitive-demanding strategies should be taught to EFL listener-learners. It would be convincing to have a more extensive study focusing on the effects of teaching cognitive-demanding strategies to EFL intermediate level students. It would also be ideal if regular tests could be administered in addition to the pre-test and post-test assessments; the results of these tests would map out the degree of learners' proficiency change over time.

Fourthly, almost all the researchers into second language acquisition agree that L1 does have a great impact on L2 learning. L2 learners at all levels go through the process of transfer of skills from L1 to L2 without conscious thought. This study reveals a pattern of listening strategies and processes of Taiwanese university students when interpreting English oral input. This pattern might also reflect the strategies they use in their Chinese listening. Therefore, raising these issues to a conscious level for EFL Chinese listener-learners may help them develop the listening strategies most appropriate for the listening task at hand. However, listening strategies and

processes used in their first language may not have been investigated before. A listening strategy shift from L1 to L2 would be an interesting area for future in-depth study.

Finally, a confirmatory study with a larger sample size and more sophisticated statistical technique (such as structural equation modeling) is suggested to verify the model proposed in this study.

Appendix 1: Likert-scale attitude questionnaire

****

Dept. Name: Date:

This form is for the survey of students who volunteer to participate in a study of English learning. First of all you need to indicate how many hours a week you can make to participate in the research.
( ) a. 1 hr b. 2 hrs c. 3 hrs d. 4 hrs e. 5 hrs

Now you will find statements about learning English. Please read each statement. Write the response (1, 2, 3, 4, or 5) that tells How True of You the statement is.
1. Never or almost never true of me
2. Usually not true of me
3. Somewhat true of me
4. Usually true of me
5. Always or almost always true of me

NEVER OR ALMOST NEVER TRUE OF ME means that the statement is very rarely true of you.
USUALLY NOT TRUE OF ME means that the statement is true less than half the time.
SOMEWHAT TRUE OF ME means that the statement is true of you about half the time.
USUALLY TRUE OF ME means that the statement is true more than half the time.
ALWAYS OR ALMOST ALWAYS TRUE OF ME means that the statement is true of you almost always.

Answer in terms of how well the statement describes you. Do not answer how you think you should be, or what other people do. There are no right or wrong answers to these statements.

( )1. As to English learning, I want to learn well, but give up because I can never get help from anyone.
( )2. As to English learning, I want to learn well, but give up because no circumstances or environment allows me.
( )3. I am not used to asking for help from English teachers, classmates, or those who have a good command of English.
( )4. I try to find as many ways as possible to memorize new vocabularies.
( )5. I read English newspaper, magazines, or books for pleasure.
( )6. I like to listen to English radio programs (e.g. Let's talk in English, or Studio classroom, etc..)
( )7. I look for English recording tapes or video for English learning.
( )8. I look for opportunities to carry on a conversation with foreigners in English.
( )9. I like to watch English language TV Shows spoken in English or go to movies spoken in English.
( )10.I think about my progress in learning English.

Appendix 1 (Chinese version)

系別：_____　　姓名：_____　　日期：_____

此份問卷是針對有意參與英語聽力研究的同學。首先請勾選本學期每星期您能騰出幾小時參加本項研究。
（　）(1)1小時　(2)2小時　(3)3小時　(4)4小時　(5)5小時

以下您將會看到有關英語的敘述。請閱讀每一項敘述，然後填寫答案（１至５）以表明該敘述對您的眞實程度。

1.我從來不會這樣做
2.我通常不會這樣做
3.我有時會，有時不會這樣做
4.我通常會這樣做
5.我總是這樣做

1.我從來不會這樣做表示該敘述幾乎完全不符合您的情況
2.我通常不會這樣做表示該敘述多半不符合您的情況
3.我有時會，有時不會這樣做表示該敘述差不多有一半符合您的情況
4.我通常會這樣做表示該敘述多半符合您的情況
5.我總是這樣做表示該敘述幾乎完全符合您的情況

請依該敘述符合您眞實情況的程度來作答，切勿依您認爲「您應該如何」或「別人會怎樣」來回答。這些敘述並無所謂對或錯的答案。

（　）1.有關英語學習，雖有意願學好，但因無人協助，結果祇得放棄。
（　）2.有關英語學習，雖有意願學好，但因環境不許可，結果祇得放棄。
（　）3.我不習慣主動向老師、同學或英語能力好的人求助。
（　）4.我會嘗試各種方法記憶新的字彙。
（　）5.我喜歡享受閱讀英文報章、雜誌與書籍。
（　）6.我時常收聽英語廣播節目（例：大家說英語、空中英語教室....）
（　）7.我會尋找英語教學錄音帶或錄影帶學英語。
（　）8.我會尋找機會與外國人以英語交談。
（　）9.我喜歡看英語發音的電視節目或電影。
（　）10.我會考量自己學習英語的進展。

我可以在下列時間參與研究，原則上每次不超過90分鐘（可複選）
（　）３月４日1:30～3:00PM
　　３月18日1:30～3:00PM
（　）三月份其他的星期五晚上
（　）三月份其他的星期六下午
（　）三月份其他的星期日下午
（　）五、六月份的星期五晚上
（　）五、六月份的星期六下午
（　）五、六月份的星期日下午

Appendix 2
Here are the complete scripts with A1, A2, A3, V1, V2 and V3.

A1

Vicky: Kelly had a habit of borrowing money.

Dom.: She had a habit of borrowing money from Denise, but never paying her back. That's not a very good habit to have.

Vicky: Yes, she had the habit of borrowing money, which was one thing, but she also has the habit of not paying the money back, which was really bad, and Denise is getting fed up with this. She was tired of it. Now, if you were Denise, what would you do?

Dom.: Well, let's look and see what our choices are:
A: Tell Kelly, you're broke, too; or
B: Give Kelly five dollars; or
C: Tell Kelly you won't lend her money until she pays back what she owes.

Vicky: This is a difficult situation, isn't it?

Dom.: It is, because Kelly and Denise are friends.

Vicky: That's right. Kenny - I'm gonna ask you again, what would you do?

Kenny: I would tell Kelly, I'm broke, too, and ask her to pay my money back. (laughing)

Vicky: You would want both, right? Okay. And Dominic?

Dom.: Actually I think I would give Kelly five dollars, and then I would write her a note of all the money that she owes me, and give it to her, and tell her that I would like ... you know, that I need to do something or I need to buy something, and I need some money.

Vicky: Hmmh. Hmmh. It's -

Dom.: That's why - I would ask her for my money back. But I would give her the money because I wouldn't want to embarrass her at the - at the cafeteria, at the food line. So I would have to give her some money because we're friends. And then I might have to talk to her for a very very long time.

Vicky: Uhm - okay. Would you give her five dollars, or would you give her two dollars? She wanted to borrow two.

Kenny: I would give her two. (laughter)

Dom.: Yeah, I'd say I'd give her two, too.

Vicky: I think I wouldn't want to give her more than she asked for, because you wouldn't probably get it back either.

Kenny: Yeah.

Dom.: What would you do, Vicky?

Vicky: I think I would - I would give it to her at that point, maybe to save her embarrassment also, and let her eat lunch. But I - I think that I would very quickly say, Kelly, we need to talk, and say: look, Tuesday, you borrowed money; Monday, you borrowed money; Wednesday, you borrowed money, and I can't keep giving you money.

Vicky: Uhm - to me, it depends on the situation. If I have a very close friend, and this happens where we - you know, one time, a person, my friend, borrows money, and she forgets to pay me back, but if she's always sharing her money with me, then I never worry about it. Uhm - this happens in some of my friendships. When I pay for something I never expect from the money to come back, and I don't care. But if a person is - has the habit of doing this, and always, always, always asking - I don't think it's healthy for them to have that kind of habit. So, I think that's what I would do.

Kenny: Yes, I would tell her that she shouldn't have that kind of habit.

Vicky: If you really care about your friend, I think you would want to be honest with them, too, because maybe, Kelly is borrowing from someone else, too. And she could ruin several friendships if she kept this up.

Dom.: That's true.

Vicky: Shall we go on to our next story?

Dom.: Yes.

End of A1

A2

Man: Let's take a closer look ...

Woman 1: ...motorcycle, you might, uh - the motorcycle might slide, and you would slide along with it, if you have a leather jacket or leather boots that would protect your skin from scraping the pavement.

Doris: But I think the biggest problem is still the helmet. Now, uhm, Julian, how many people actually wear helmets then since this year?

Julian: Only 14 per cent. And so that means the majority are not convinced that helmets are useful.

Doris: Well, I don't know if they're not convinced. But, you know, I think a lot of people think it's too much trouble. And I don't blame them in that way because, you know, if you put on a helmet, and then you don't know where to put it when you get off, especially if you're riding with your friend - there's two helmets, then where do you put them? Somebody might steal them if you leave them on your motorcycle. Can't carry them into where you're going to be carrying your helmet around. So it isn't really convenient in that way.

Mary: I must say that helmet is very hot, also very ugly - speaking as a woman, but it is also very necessary.

Doris: Maybe somebody can invent something that does the same thing as a helmet, but you can fold it up and put in your pocket. Some kind of -

Woman 1: An air-bag helmet.
Yeah, that's right - an air-bag helmet or something - (laughter)

Woman 1: Well, -

Doris: It's got to be something,...but it's not impossible.

Woman 1: Well - no. I sometimes wear a helmet, even for my bicycle. And at first I was afraid it would get stolen, but after a while I didn't bother to lock it up, and I found that no one was interested in taking it at all. So I think if you just have a regular helmet, perhaps it's safe. Hopefully no one would steal it.

Doris: Well, don't come back ... to use it...if you get yours stolen. (laughter)

Woman 1: And some motorcycles now have seats that lift up, and you can put your helmet inside the seat and then lock the seat when you leave. So, that's more convenient, too.

Woman 2: But I think what Mary said is also true, that helmets feel hot and heavy, 'specially in the summer time.

Mary: Yes. Right.

Doris: Well, some people feel that helmets aren't necessary. But the third one we often hear: "I drive carefully!" I can say that - you know, (a)bout cars, too, you might be a very good driver, but you could get hit by someone who is not a good driver. So it does not mean, you won't be in an accident. If you're in an accident, you know, it's not always your fault.

Man: U-hum.

Woman 1: That's true. Uhm - and there's a combination of these the next one also says "I only go short distances". One time I was riding in a van, and a motorcycle - ah - crashed into us. And the man said "Well, I wasn't wearing my helmet because I was only coming a short distance". But believe me, he was - ah - he was quite injured, yes.

Doris: Well, you know, it's the same way in your car. People like to say "Well, I'm just going down to the store to buy something, and I don't need to put my seatbelt on; just a few blocks!" And they say that there's more accidents in those few blocks, because you didn't put your seatbelt on. It's interesting. And they say a lot of people who are scuba divers and all that - that that - some of them just die in swimming pools, practicing, because it seems like it would be so safe, and they're not worried about it.

Woman 1: That's right.

Doris: They're out in the ocean, and they're fine.

Woman 1: Yeah, because they are more careless. I think most accidents do happen close to someone's home.

Doris: Well. Of course, the last one, what does the last one say?

Man: Nobody else wears them.

Doris: Right, but then you're not somebody else. So, if somebody else wants to be in the hospital for six months or something. Why, do you want to?

Doris: I don't want to be in the hospital just because somebody else is.

Woman 1: Not only that. Maybe you can be a good example for others. Maybe if you start wearing a helmet, your friends will start wearing one, too.

Doris: Well, don't count on it.
It's a good idea. But in fact, helmets do work.

End of A2

A3

John: ...just watch out for 24-hour restaurants.

Ruby: That's right.

John: And be sure there's a fire exit that you can get through if there's a fire, because, as with many fatal fires in Taiwan, blocked emergency exits prevented people from escaping. This is a really sad thing, and has been the case in other fires, other fatal fires in Taiwan. In fact I think nearly every time I read in the paper about a fatal fire, some of the emergency exits have been blocked, and so you have a pile of bodies by the door, by the exit, where people are trying to get out, but they can't. That's really sad, and unnecessary. And these blocked exits prevent people from escaping. In this case, I think, there were four emergency exits, and three of them were blocked off for some reason.

Ruby: When I read these news stories like this, it makes me wonder why do the restaurants even haven't the emergency exits? Uhm - maybe part of it, it's just we need law enforcement to keep up with the safety rules like that.

John: Well, when people build restaurants and other kinds of buildings, they have to build according to the regulations. And the regulations say you must provide so many exits for a certain size of floor area, or certain number of people that will occupy the premises. So, when they build it, they usually build with the correct number of exits. What happens after that is that the occupant or the tenant of the space comes in and says "Oh, we need this space around the exits, so we'll block it off and we'll put tables there, instead", or they'll say "We need storage area, so we'll store things in the exits". Or they're afraid that someone's come up the emergency exits and break in at night, so they chain the doors closed so no one can get in. And - so the building probably was built properly, but the occupant or the user of the building does things that make it unsafe. And this is really too bad. That's where the enforcement comes in where you really need to send inspectors around and be sure that all of the safety features of a building are working properly.

Mary: Actually, Ruby, we do have a lot of regulations concern the safety of the building. I think, one of the problems is our government does not enforce the law strong enough. Also we, small people, believe that inspectors go, they do go, and check - but maybe with little bribe, they just close their eyes!

Ruby: Hmmh. Hmmh.

John: And so there's a price to pay. And hopefully this kind of thing will change in the future. Maybe this case will spur some more public action to - to protect people. Even in apartment buildings, where people live and sleep at night, there are similar problems, I think sometimes exits are blocked and they shouldn't be, or people put things in the stairway so that - if there's a fire it's hard for people to get out safely. And hmmh fire safety is quite important; it's something that we should all take seriously. If there is someone in your building that is blocking exits or locking emergency doors, then get them to open them up.

Mary: Yes.

John: Don't - don't allow it. Call the police in -

Mary: John!

End of A3

V1

In the hospital the next day. Now there are four children, including Carl. Molly enters and tries to amuse them.

Molly: OK. Do you know how to play Charades?
【*Betty and Tim raise their hands.*】

Molly: Frank, you've never played charades?

Frank: Nope.

Molly: Carl, you're sure you've never played?

【*Carl shakes his head.*】

Molly: OK, Betty, Tim, and Frank. We're going to play charades. Frank, you can learn as we go. And, Carl, you join in at any time. OK, let me think. OK, I've got one. 【*She writes a title on a piece of paper. She puts the paper on a*

table so that no one can see the title.】 All right. 【*She makes the charades motion for "movie" by pretending to hold an old-fashioned camera in her left hand and turning the handle with her right hand.*】

Betty: A movie! A movie!

Molly: 【*She touches her nose with her index finger. This means "correct" in charades.*】 Right. A movie. OK. 【*She counts to six on her fingers because there are six words in the title of the movie. Then she holds up six fingers.*】

Tim: Six words. It has six words.

Frank: That's easy. I can play.

Molly: Good. OK. We've got a movie. The title...

Betty: Six words.

Molly: Right. First word... 【*She pulls her ear. This means "sounds like" in charades.*】

Betty: Sounds like.

Tim: Sounds like...

Molly: You've got that part right. Yes. 【*pulling her ear*】 Sounds like... 【*She shakes her head no.*】 Sounds like what?

Frank: Sounds like no.

Molly: 【*touching her nose*】 Absolutely right, Frank. Sounds like no. OK. We've got a movie. Six words. The first word sounds like no.

Frank: Row. Row.

Tim: Go.

Molly: Nope.

Tim: Show. That's it-show.

Molly: 【*laughing*】 No...OK... 【*She acts out the word snow with her fingers.*】

Betty: 【*quickly*】 Snow.

Molly: 【*She touches her nose.*】 Absolutely right, Betty. Sounds like no-snow. OK, a movie. Six words. The first word is snow.

Frank: This is fun.

【*Carl doesn't think so.*】

Molly: Oh, OK. 【*She holds up five fingers.*】

Betty: The fifth word.

Molly: Right, fifth word. 【*She holds up seven fingers.*】

Tim: Seven?

Molly: 【*She touches her nose.*】 Absolutely right. Very good. The fifth word is seven. OK, we've got a movie. The first word is snow. Fifth word, seven.

Betty: I got it! I got it!

Frank: Snow White and the Seven Dwarfs.
【*Molly shows the piece of paper with the title.*】

Betty: I got it.

Frank: I got it.

Molly: Frank, you got it. Betty, you had it, but you didn't say it.

Tim: I knew it.

Molly: Carl, now you know charades. Why don't you join us?

Carl: I don't like charades. It's for babies.

Molly: Oh, I like it.

Carl: Well, they're babies.

Betty: You're a sore loser.

Tim: Yeah.

Molly: No arguing. Save your voices. Between now and tomorrow you're all going to have your tonsils out. And you won't be able to speak for a while. So save your voices till then. 【*She points to her throat.*】

Philip: 【*He enters.*】 Hi, gang. Hi, everybody. Well, what's going on?

Molly: I sure am glad to see you, Dr. Stewart. 【*joking*】 This is a rough group.

Carl: I didn't want to play charades, so they're angry at me.

Philip: Why don't you want to play?

Carl: Because I don't want to be here. I don't want my tonsils out.

Philip: Why not?

Carl: Because my birthday is tomorrow. My mother promised me a birthday party with a clown.

Molly: But you can have one when you go home, Carl.

Carl: But my birthday is tomorrow.

Philip: I'm sorry, Carl.

Molly: Carl, you'll have your party when you go home.

Carl: But it won't be on my birthday! 【*to Molly*】 And you promised me a surprise.

Molly: Hi, Carl. How ya'doing?
【*Carl points to his throat.*】

Molly: I know it hurts. But it'll be better tomorrow. In the meantime, what would you like?

Carl: Surprise.

Molly: A surprise? I promised you a surprise, didn't I? And it wasn't just ice cream, was it?

【*Carl can't say another word. It is difficult for him to speak.*】

Molly: Your birthday is tomorrow, isn't it?
【*He nods.*】

Molly: Well, maybe, just maybe, there will be a surprise. But first you have to smile. I just want to see one smile from you.

【*Carl doesn't smile.*】

Molly: No smile, no surprise. That's the deal. No smile, no surprise. If you want a surprise, then you've got to smile first.

【*Carl finally smiles.*】

In the hospital the next day. It's Saturday, Carl's birthday. The children are feeling better. Carl is waiting for his surprise. Molly enters.

Molly: How you all doing? Well, I'm glad you're feeling better because we have a little surprise for you today. It's Carl's birthday【*Carl smiles*】, and we have Popo the Clown to entertain you. And here he is-Popo the Clown.

【*Molly waves her hand, and a clown comes into the room. The children watch the clown, and they become happy. A little later , Philip and Mrs. Herrera enter. They are wheeling a table with bowls of ice cream on it.*】

Philip: Happy birthday, Carl. Happy birthday. All right, everybody. OK, Carl. It's your birthday. What's your wish? What would you like?

【*Carl pulls his ear. Then he points to his nose.*】

Philip: Hmm? 【*He doesn't understand.*】

Molly: 【*She understands.*】 You want to play charades?

【*They all laugh and clap their hands.*】

End of V1

V2

In the Stewarts' home. Robbie Stewart and his friend Alexandra Pappas are listening to music in the living room.

Alexandra: Robbie, this new Walkman is absolutely wonderful.

Robbie: Richard and Marilyn bought it for me for my birthday.

Alexandra: They're so thoughtful. You are very lucky, Robbie, to have such a nice family.

Robbie: Is something wrong, Alexandra?

Alexandra: No, nothing.

Robbie: Yes, there is. I can tell. What's the matter? Come on, you can tell me. What's up?

Alexandra: I don't know. Something's wrong.

Robbie: OK, let's talk.

Alexandra: I received a letter from my parents this morning.

Robbie: Did they write some bad news?

Alexandra: No.

Robbie: Well, then why are you so sad?

Alexandra: I miss them. I miss them very much.

Robbie: I'm sorry. Alexandra. But I understand.

Alexandra: The Molinas treat me so nicely, and I love being with your family so much... but when I received the letter with photographs of my family, I cried. I cried because I miss them all.

Robbie: You really miss your family, don't you?
Alexandra: Yes. I know I must seem silly. It's not like I have nobody. I like the Molinas very much, and they're so kind to me.

Robbie: Hey, why don't we go out for a cheeseburger and french fries? That'll cheer you up. And you can use my Walkman.

Alexandra: That's a good idea. But if we go out, please don't complain about your math teacher or your math homework. I want to have fun.

Robbie: So do I. 【*He begins to turn off the lights.*】
I have to turn off the lights, or else my father will get really angry. He says I never turn them out when I leave. If they come home and they're on... 【*He moves his index finger across his throat to show that his father will be angry.*】

【There is a sound at the patio door.】

Robbie: Do you hear something?

Alexandra: Yes. What was that?

Robbie: It sounded like a dog barking.

Alexandra: It sounded like a dog barking right here.

Robbie: Yeah. 【*He opens the door. A dog is standing there.*】

Alexandra: A dog!

Robbie: A springer spaniel! 【*to the dog*】 Come on in! Make yourself at home.

Alexandra: Oh, you poor little thing. Come here.

Robbie: Come on.

Alexandra: Poor baby.

Robbie: Where did you come from?

Alexandra: 【*She looks at the dog's identification tag.*】 Her name's Gemma, and she belongs to Mr. and Mrs. Levinson. There's a phone number- five five five... eight four four eight. Robbie, maybe you should call them and tell the Levinsons we have their cute little spaniel.

Robbie: I've always wanted a springer spaniel. She's so cute. 【*He goes to the telephone and dials the Levinsons' number.*】

Operator: The number you are calling- 555-8448- is no longer in service.

Robbie: 【*He hangs up the phone.*】 The number's no longer in service.

Alexandra: 【*to the dog*】 Oh, you poor, poor baby. You've lost your family.

Robbie: We'll find them. Don't worry, Alexandra.

End of V2

V3

Cathy: Welcome back to the final edition of "Success Magazine". Our final story is about a topic that's on everyone's mind: the environment.

Man: This beautiful beach is a national seashore park. It is a protected land. The environment needs our constant attention and care so that future generations can enjoy this wonderful scenery, too. Cathy interviewed a number of local college students about their hopes for the future and their feelings

about the environment.

Cathy: Hi. We're at the Northshore Community College, and today we're talking with Kurt Anderson. Kurt, what are some of the issues on the minds of college students today?

Kurt: Uhm - I'm finding a lot of students who are very concerned about the environment and environmental policies, and also finding a lot of students who are concerned about politics, and what's going on in the national politics.

Cathy: What are you studying, and how will that prepare you for your future career?

Kurt: I'm studying electromechanical technology, and I'm going to be going into a mechanical engineering program, and I hope to be designing automobiles and more efficient means of transportation.

Cathy: Joanne, what are you studying here at the Northshore Community College?

Joanne: I'm studying business administration.

Cathy: Tell us about your future career?

Joanne: Uhm - I want to get into the business field. I'd like to own my own business some day, and I did work for several years out in the business world, however I found that I was very limited in what I could do, because I didn't have a college education.

Cathy: What are some of the issues on the minds of college students today?

Joanne: The environment is a very big issue. Crime, also. I believe the lack of available education is also a major concern.

Cathy: Why is the environment such an important issue to college students?

Joanne: Well, if you don't have Planet Earth- What do you have - uhm - basically. And we're just - we're destroying what we've been given, and you cannot repair all the destruction that's going on.

Man: The environment is a pretty serious topic. When we come back, we'll show you some fun at the beach.

(The *written script was shown on the TV screen.*)
This message is saving earth.
We wrote the script on recycled paper.
We didn't go on location so we didn't use any gas.
And worked under energy efficient light bulbs.
Now if we can start saving the earth in thirty seconds.
Just think what you could do in real life.

1(800)488-8887

(Music) Let's get together now, it's time to stop and care about the things we love so much, The Land, the Sea, the Air.
(Chorus) Yeah, we're with you, 'cos we care too - some(one) wants to care -

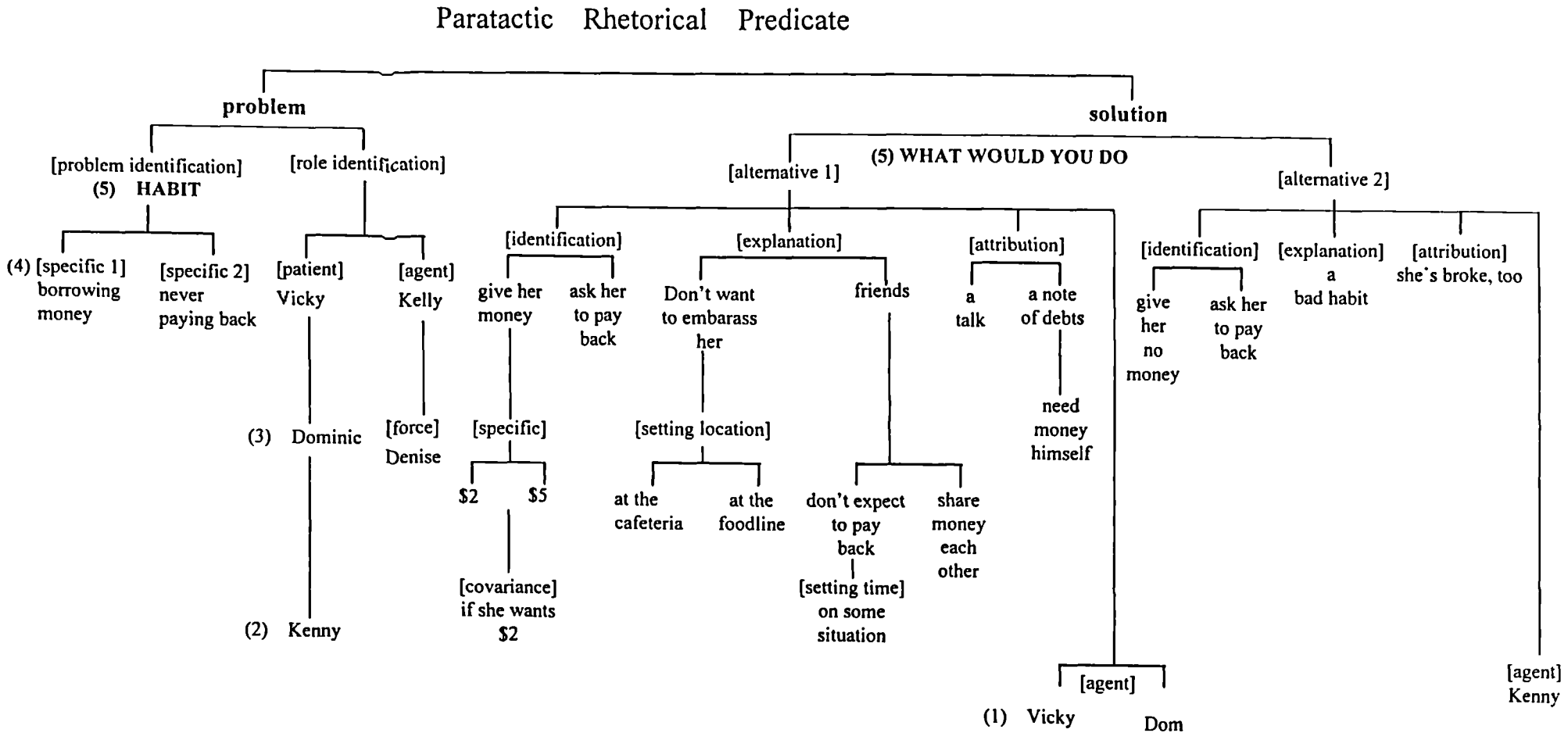
Man: At Anheuser Busch, our environmental philosophy is based on the belief that we must preserve our natural resources for the generations to come. A hundred years ago, we began by recycling grains, animal feed. Today, we're the world's largest recycler of aluminium cans; recycling 100% of what we use, saving resources and energy. And in the future, our commitment to our quality environment will continue.

(Music) (Chorus) We're with you, 'cos we care too -

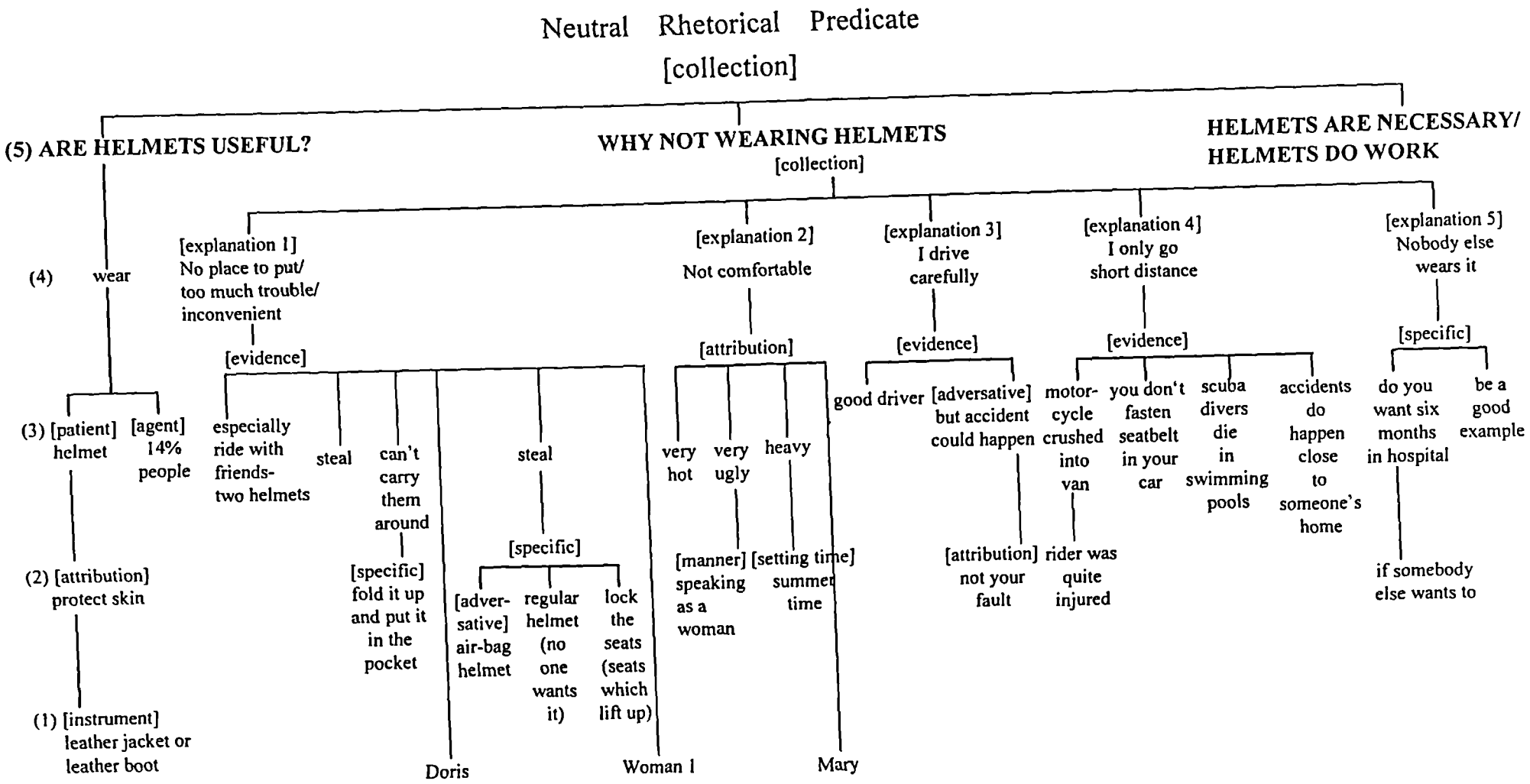
Man: A pledge and a promise from the Anheuser Busch Companies.

End of V3

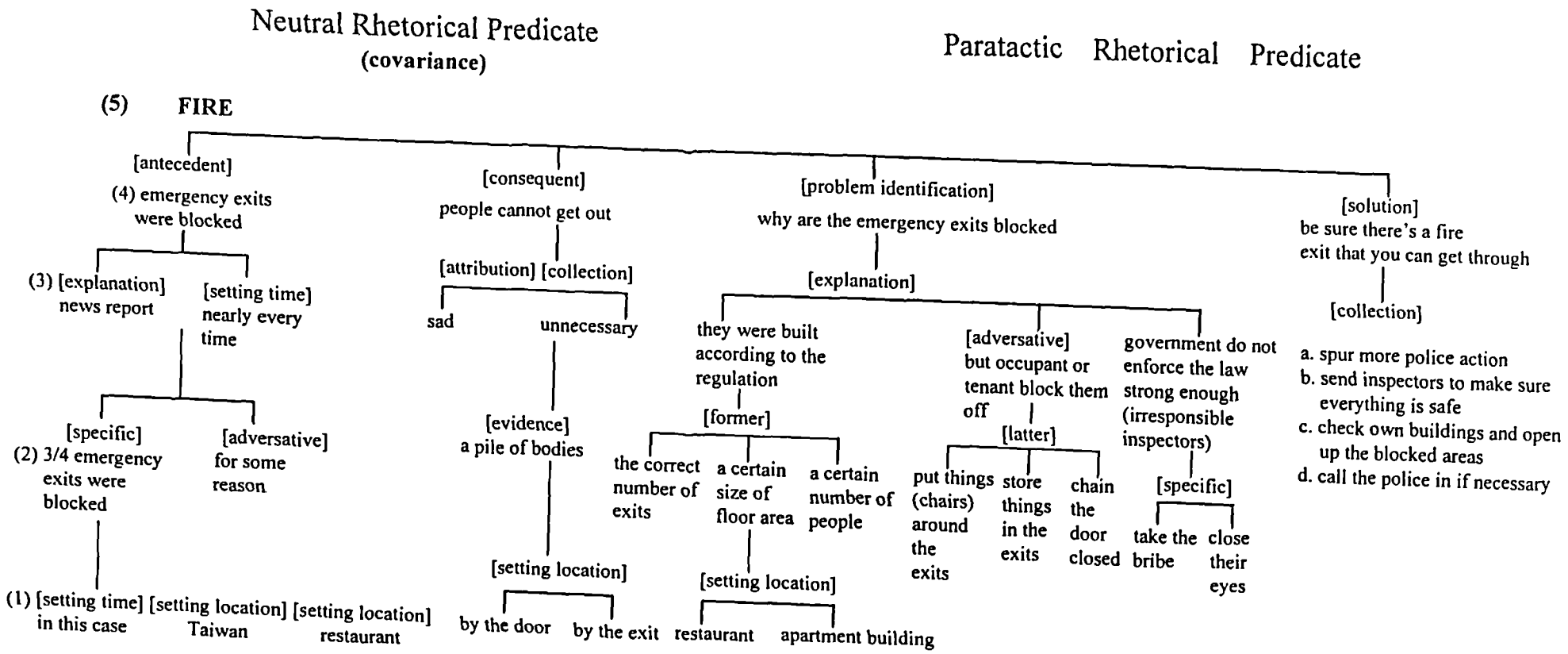
Appendix 3: Hierarchical Representation of the Text—A1



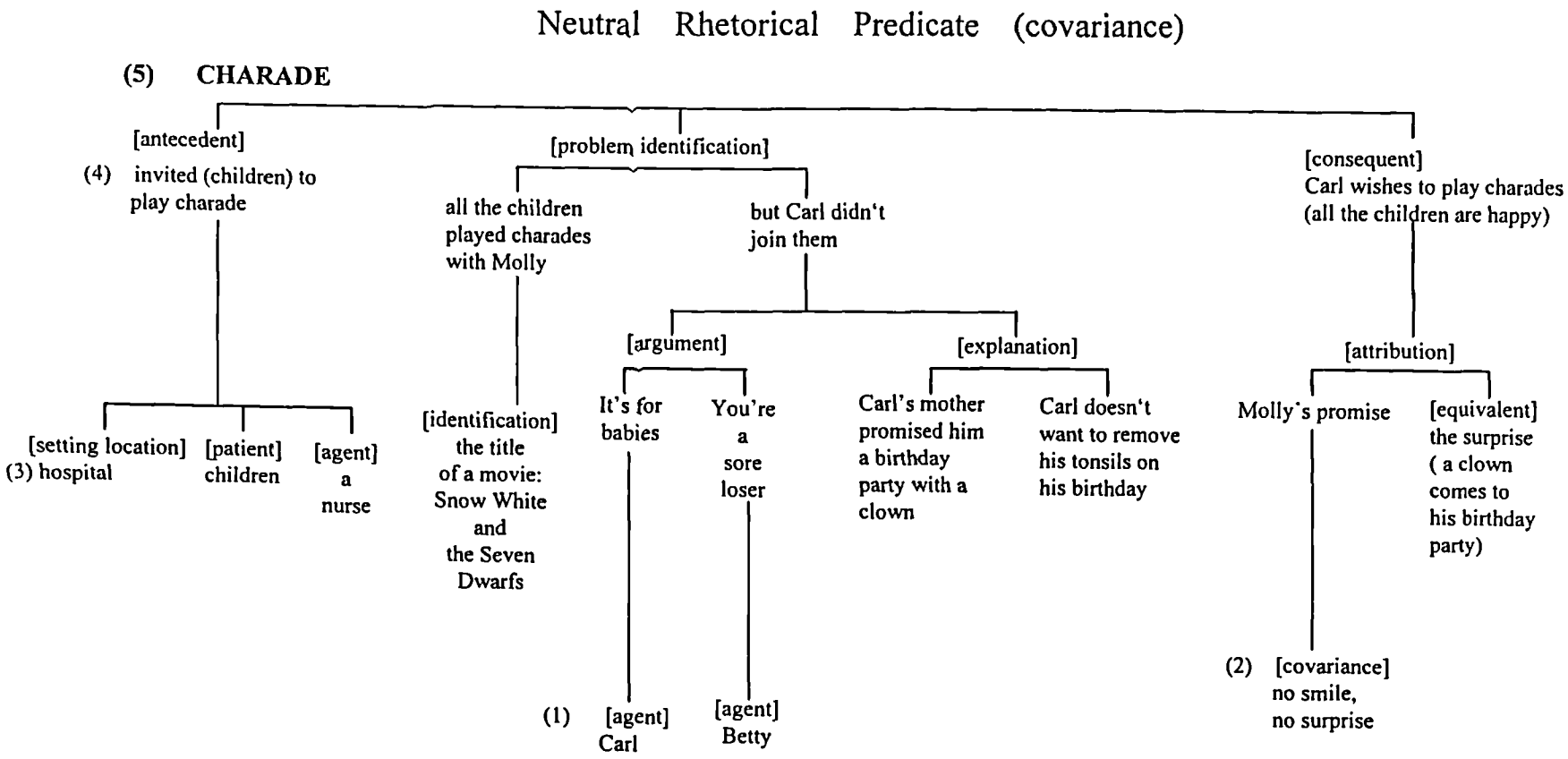
Appendix 3: Hierarchical Representation of the Text—A2



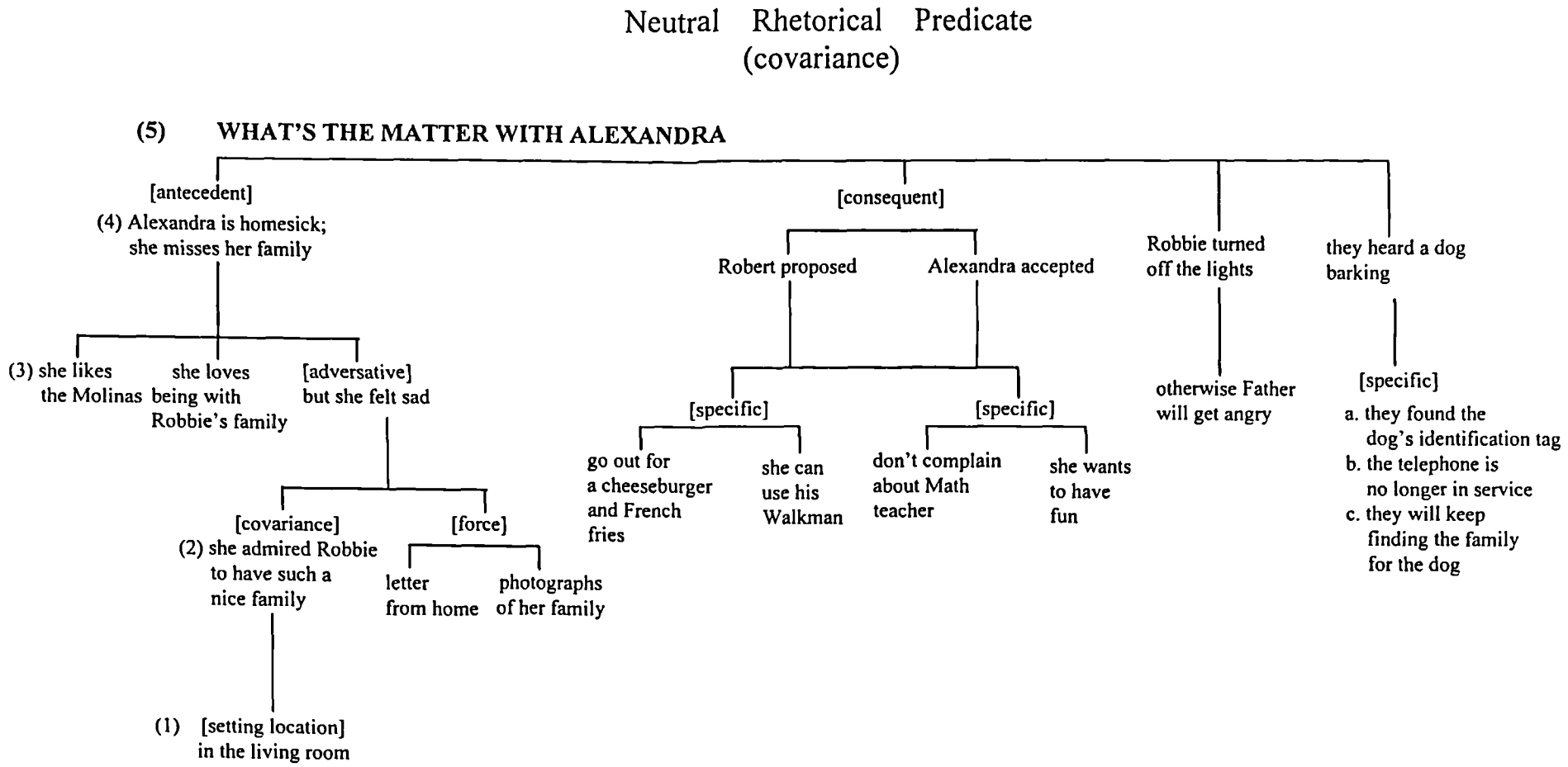
Appendix 3: Hierarchical Representation of the Text—A3



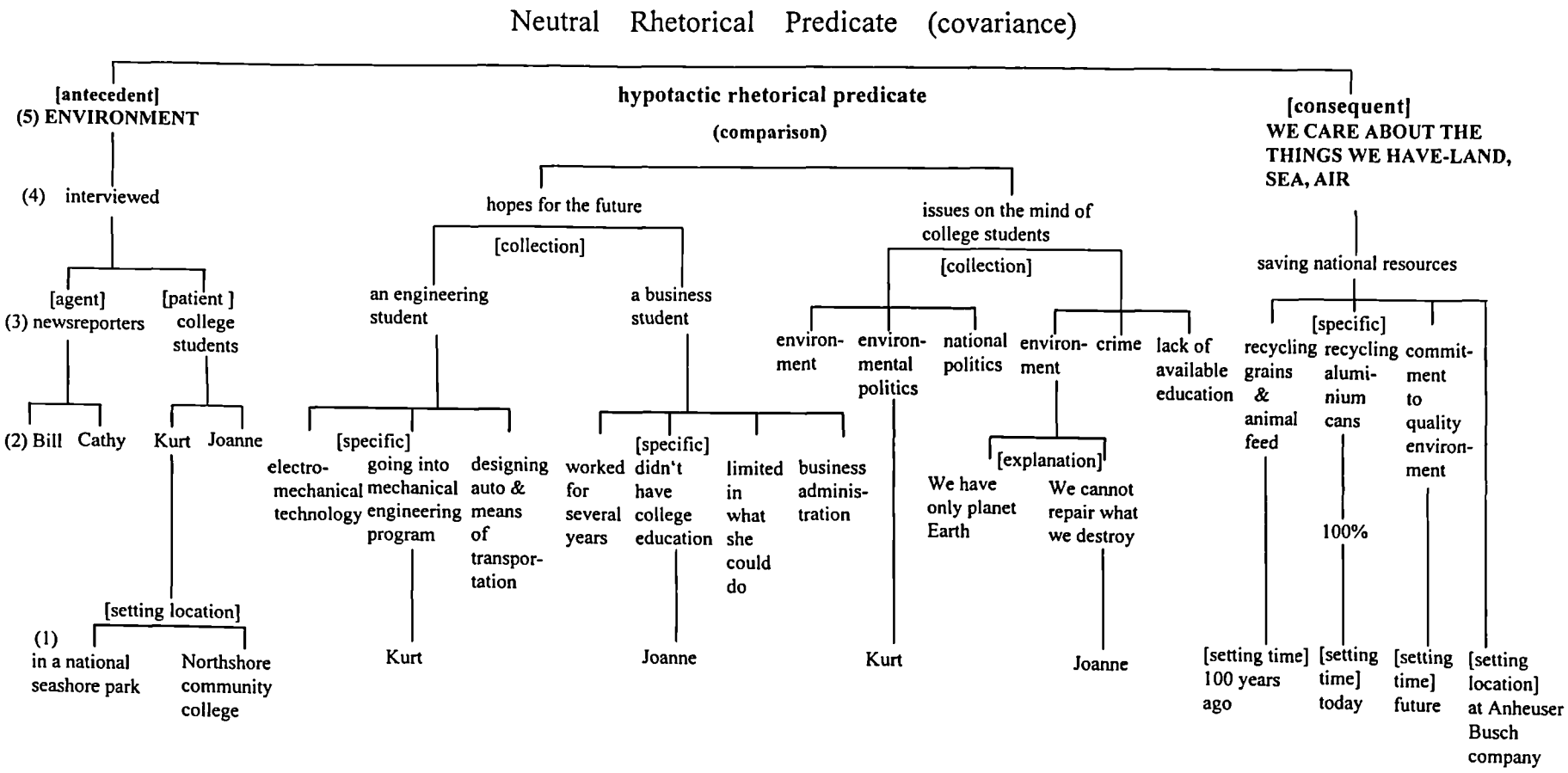
Appendix 3: Hierarchical Representation of the Text—V1



Appendix 3: Hierarchical Representation of the Text—V2



Appendix 3: Hierarchical Representation of the Text—V3



Appendix 4: Assigning point values

Numbering **A1**	Points	Idea Units
1	5	[identification] HABIT
2	4	[specific 1] borrowing money
3	4	[specific 2] never paying back
4	4	[agent] Kelly
5	3	[force] Denise
6	4	[role identification 1] Vicky (teacher 1)
7	3	[role identification 2] Dominic (Dom: teacher 2)
8	2	[role identification 3] Kenny (teacher 3)
9	5	[solution] WHAT WOULD YOU DO
		[alternative 1]
10	4	[identification] give her the money
11	4	[identification] ask her for my money back
		[specific]
12	3	$5
13	3	$2
14	2	[covariance] if she wanted to borrow two
15	4	[explanation 1] wouldn't want to embarrass her
16	2	[setting location 1] at the cafeteria
17	2	[setting location 2] at the food line
18	4	[explanation 2] we're friends
19	3	[attribution] never expect the money to come back
20	3	[attribution] share her money with me (share money each other)
21	2	[setting time] depends on the situation (on some situation)
22	4	[attribution1] have to talk to her (we need to talk)
23	4	[attribution 2] write her a note of all the money that she owes me
24	3	[explanation] I need to buy something (I need some money)
25	1	[agent] Vicky
26	1	[agent] Dom

		[alternative 2]
27	4	[identification] ask her to pay my money back
28	4	[identification] give her no money (you would want both)
29	4	[explanation] she shouldn't have that kind of habit
30	4	[attribution] I'm broke, too
31	1	[attribution] Kenny
Total points		

Appendix 4: Assigning point values

Numbering **A2**	Points	Idea Units
1	5	[problem identification] THE MAJORITY ARE NOT CONVINCED THAT HELMETS ARE USEFUL(Are helmets useful or necessary?)
2	4	wear
3	3	[agent] 14% riders (14% people)
4	3	[patient] helmet
5	2	[lexical predicate] protect your skin
6	1	[instrument, agent] a leather jacket
7	1	[instrument, agent] leather boots
		[collection]
8	5	NOT WEARING HELMETS
9	4	[explanation 1] don't know where to put it (too much trouble or it isn't really convenient)
10	3	[evidence] especially if you're riding with your friend—so there are two helmets
11	3	somebody might steal them
12	3	can't carry them around
13	2	[specific] fold it up and put it in your pocket
14	2	[specific] an air-bag helmet (a new invention)
15	2	[specific] have a regular helmet (no one was interested in taking it at all)
16	2	[specific]lock the seat (seats that lift up)
17	4	[explanation 2] not comfortable
18	3	[attribution] very hot
19	3	[attribution] very ugly
20	2	[manner] speaking as a woman
21	3	[attribution] heavy
22	2	[setting time] [range] in the summer time
		[explanation 3]

23	4	I drive carefully
24	3	[evidence] You might be a very good driver
25	3	[adversative] but, ...it does not mean, you won't be in an accident (accident still could happen)
26	2	[attribution] it's not always your fault
27	4	[explanation 4] I only go short distance
28	3	[evidence] a motorcycle crashed into us
29	2	[attribution] the rider was quite injured
30	3	it's the same way in your car; you didn't put your seatbelt on
31	3	scuba divers die in swimming pools
32	3	most accidents do happen close to someone's home
33	4	[explanation 5] nobody else wears them
34	3	[specific] do you want to be in hospital
35	2	[covariance] if somebody else wants to be in hospital six months
36	3	[specific] maybe you can be a good example for others
37	5	HELMETS DO WORK (Helmets are necessary)
Total points		

Appendix 4: Assigning point values

Numbering A3	Points	Idea Units
1	5	FIRE
2	4	[antecedent] some of the emergency exits have been blocked
3	3	[setting time] nearly every time
4	3	[explanation] I read in the paper (news report)
5	2	[specific] three of the four emergency exits were blocked off
6	2	[adversative] for some reason
7	1	[setting time] in this case
8	1	[setting location] in Taiwan
9	1	[setting location] restaurant
10	4	[consequent] People are trying to get out, but they can't
11	3	[attribution] This is really sad.
12	3	[attribution] unnecessary
13	2	[evidence] a pile of bodies
14	1	[setting location] by the door
15	1	[setting location] by the exit
16	4	[problem identification] why do the restaurants even haven't the emergency exits?(why are emergency exits blocked?)
17	3	[explanation] they have to build according to the regulations (building probably was built properly)
18	2	[former] a certain size of floor area
19	2	[former] a certain number of people
20	2	[former] the correct number of exits
21	3	[adversative] but the occupant or the user of the building does things that make it unsafe (block them off)
22	2	[latter] put things (tables) around the exits
23	2	[latter] store things in the exits
24	2	[latter] chain the door closed so no one can get in
25	3	[explanation] our government does not enforce the law strong

		enough (irresponsible inspector)
26	2	[specific] with little bribe
27	2	[specific] close their eyes
28	1	[setting location] restaurant
29	1	[setting location] apartment buildings
30	4	[solution] be sure there's a fire exit that you can get through
		[collection]
31	3	spur some more public action
32	3	send inspectors around and be sure that all of the safety features of a building are working properly
33	3	open up the blocked areas
34	3	call the police in
Total points		

Appendix 4: Assigning point values

Numbering **V1**	Points	Idea Units
1	5	CHARADE
		[antecedent]
2	4	invited(do you know how to play charade?)
3	3	[agent] a nurse
4	3	[patient] four children (all the children)
5	3	[setting location] in the hospital
		[problem identification]
6	4	All the children played Charade except Carl
7	3	[movie identification] they got the title of the movie
8	2	[specific] Snow White and the Seven Dwarfs
9	4	[adversative] why don't you join us? (Carl didn't join them)
10	3	[argument 1] It's for babies
11	1	[agent] Carl
12	3	[argument 2] You're a sore loser
13	1	[agent] Betty
		[explanation]
14	3	I don't want my tonsils out on my birthday
15	3	Carl is worried that he might miss a clown
16	3	My mother promised me a birthday party with a clown
17	4	[consequent] Carl wants to play Charades
18	3	[attribution] Molly promised Carl a surprise
19	2	[covariance] No smile, no surprise
20	3	[attribution] It's Carl's birthday, and we have Popo the Clown to entertain you
Total points		

Appendix 4: Assigning point values

Numbering **V2**	Points	Idea Units
1	5	WHAT'S THE MATTER WITH ALEXANDRA
		[antecedent]
2	4	Alexandra is homesick. (She misses her family.)
		[specific]
3	3	The Molinas treat me so nicely (She likes the Molinas).
4	3	I love being with your family (She loves being with Robbie's family).
5	3	[adversative] but I felt sad
6	2	[force] I received a letter from my parents.
7	2	with photographs of my family
8	2	[covariance]
		She admired Robbie to have such a nice family.
9	1	[setting location]
		in the living room
		[consequent]
10	4	Robbie proposed
		[specific]
11	3	go out for a cheeseburger and french fries
		[specific]
12	3	you can use my Walkman
13	4	Alexandra accepted
		[specific]
14	3	don't complain about your math teacher or your math work
15	3	I want to have fun.
16	4	Robbie turned off the lights.
17	3	or else my father will get really angry (or else my father will kill me.)
18	4	They heard a dog barking.
		[specific 1]
19	3	She found the dog's identification tag.
		[equivalent]

20	2	its name
		[equivalent]
21	2	telephone number
		[specific 2]
22	3	The telephone is no longer in service.
		[specific 3]
23	3	They will keep finding the family for the dog.
Total points		

Appendix 4: Assigning point values

Numbering **V3**	Points	Idea Units
		[antecedent]
1	5	ENVIRONMENT
2	4	interviewed
3	3	[agent] news reporter
4	2	[equivalent] Cathy
5	3	[patient] college students
		[equivalent]
6	2	Kurt
7	2	Joanne
8	1	[setting location] in a national seashore park
9	1	[setting location] Northshore Community College
		[comparison]
10	4	hopes for the future
		[collection]
11	3	an Engineering student
12		[specific 1]
	2	studying electromechanical technology
13	2	[specific 2]
		going into a mechanical engineering program
14	2	[specific 3]
		designing automobiles and more efficient means of transportation
15	1	[agent] Kurt
16	3	a business student
17	2	[specific 1]
		did work for several years
18	2	[specific 2]
		didn't have college education
19	2	[specific 3]
		limited in what she could do
20	2	[specific 4]
		studying business administration
21	2	[specific 5]
		like to own her own business some day
22	1	[agent] Joanne

23	4	issues on the mind of college students
		[collection]
24	3	environment
25	3	environmental policy
26	3	politics
27	1	[agent] Kurt
28	3	environment
29	3	crime
30	3	lack of available education
		[explanation]
31	2	If you don't have Planet Earth, what do you have? (We have only one Earth.)
32	2	We're just destroying what we've been given, and we cannot repair all the destruction that's going on. (We cannot repair what we destroy.)
33	1	[agent] Joanne
		[consequent]
34	5	WE CARE - LAND, SEA, AIR
35	4	saving natural resources
36	3	[specific 1] recycling grains & animal feed
37	1	[setting time] 100 yrs ago
38	3	[specific 2] recycling aluminum cans
39	2	[attribution] 100%
40	1	[setting time] today
41	3	[specific 3] our commitment to our quality environment
42	1	[setting time] future
43	1	[agent] Anheuser Busch Companies
Total points		

Appendix 5: Scoring sheet

A1

Student Name:

Idea #	Points	Scoring 1st, 2nd, 3rd ↑			Idea Units
1	4				Kelly (Someone)
2	5				**HABIT**
3	4				borrowing money
4	3				Denise
5	4				never paying back
6	4				Vicky (teacher 1) or (woman 1)
7	3				Dominic (teacher 2) or (man 1)
8	2				Kenny (teacher 3) or (woman 2)
9	5				**WHAT WOULD YOU DO**
10	1				Vicky's view (woman 1's view)
11	1				Dom's view (man 1's view)
12	4				I would write her a note of all the money that she owes me
13	3				I need to buy something (I need some money)
14	4				ask her for my money back
15	4				give her the money
16	3				$5
17	4				I wouldn't want to embarrass her
18	2				at the cafeteria
19	2				at the food line
20	4				we're friends
21	4				I have to talk to her. (We need to talk.)
22	3				I would give her $2.
23	2				if she wanted to borrow $2
24	2				depends on the situation (on some situation)
25	3				share her money with me (share money each other)
26	3				never expect the money to come back
27	1				Kenny's view (woman 2's view)
28	4				I'm broke, too.

29	4				ask her to pay my money back
30	4				give her no money
31	4				she shouldn't have that kind of habit
Total points					

Appendix 5: Scoring sheet

A2

Student Name:

Idea #	Points	Scoring 1st, 2nd, 3rd ↑			Idea Units
1	1				a leather jacket
2	1				leather boots
3	2				protect your skin
4	4				wear
5	3				helmet
6	3				Only 14% riders (people)
7	5				**THE MAJORITY ARE NOT CONVINCED THAT HELMETS ARE USEFUL(Are helmets useful or necessary?)**
8	5				**A LOT OF PEOPLE NOT WEARING HELMETS**
9	4				don't know where to put it (too much trouble) or (it isn't really convenient)
10	3				especially if you're riding with your friend-so there are two helmets
11	3				somebody might steal them
12	3				can't carry them around
13	4				not comfortable
14	3				very hot
15	3				very ugly
16	2				speaking as a woman
17	3				heavy
18	2				in the summer time
19	2				fold it up and put it in your pocket
20	2				an air-bag helmet (a new invention)
21	2				have a regular helmet (no one was interested in taking it at all)
22	2				lock the seat (seats that lift up)
23	4				I drive carefully
24	3				You might be a very good driver.
25	3				but,...it does not mean, you won't be in an

					accident (accident still could happen)
26	2				it's not always your fault
27	4				I only go short distance.
28	3				a motorcycle crashed into us
29	2				the rider was quite injured
30	3				it's the same way in your car; you didn't put your seatbelt on
31	3				scuba divers die in swimming pools
32	3				most accidents do happen close to someone's home
33	4				nobody else wears them
34	2				if somebody else wants to be in hospital six months
35	3				do you want to be in hospital, too
36	3				maybe you can be a good example for others
37	5				**HELMETS DO WORK (Helmets are necessary.)**
Total points					

Appendix 5: Scoring sheet

A3

Student Name:

Idea #	Points	Scoring 1st,	2nd,	3rd ↑	Idea Units
1	1				restaurant
2	5				**FIRE**
3	4				be sure there's a fire exit that you can get through
4	1				in Taiwan
5	3				nearly every time
6	3				I read in the paper.
7	4				some of the emergency exits have been blocked
8	2				a pile of bodies
9	1				by the door
10	1				by the exit
11	4				people are trying to get out, but they can't
12	3				that's really sad
13	3				unnecessary
14	1				in this case
15	2				three of the four emergency exits were blocked off
16	2				for some reason
17	4				why do the restaurants even haven't the emergency exits?(why are emergency exits blocked)
18	3				they have to build according to the regulations (building probably was built properly)
19	2				a certain size of floor area
20	2				a certain number of people
21	2				the correct number of exits
22	2				put things (tables) around the exits
23	2				store things in the exits
24	2				chain the doors closed so no one can get in

25	3				the occupant or the user of the building does things that make it unsafe
26	3				send inspectors around and be sure that all of the safety features of a building are working properly (send inspectors and make sure everything is safe)
27	3				our government does not enforce the law strong enough (irresponsible inspectors)
28	2				with little bribe
29	2				close their eyes
30	1				restaurant
31	3				spur some more public action
32	1				apartment buildings
33	3				open up the blocked areas
34	3				call the police in
Total points					

Appendix 5: Scoring sheet

V1

Student Name:

Idea #	Points	Scoring 1st,	2nd,	3rd ↑	Idea Units
1	5				**CHARADE**
2	3				a nurse (Molly)
3	4				invited to play charades
4	3				four children (some children)
5	3				in the hospital
6	4				all the children played charades except Carl
7	3				They got the title of the movie.
8	2				Snow White and the Seven Dwarfs
9	4				Why Carl didn't want to join them?
10	1				Carl's argument
11	3				It's for babies.
12	1				Betty' s argument
13	3				Carl is a sore loser.
14	3				Carl doesn't want his tonsils out on his birthday.
15	3				Carl's mother promised him a birthday party
16	2				His mother promised him a birthday party with a clown.
17	3				Molly promised Carl a surprise.
18	2				No smile, no surprise.
19	3				Popo the Clown came to entertain them on Carl's birthday.
20	4				Carl wants to play charades with them. (all the children are happy)
Total points					

Appendix 5: Scoring sheet

V2

Student Name:

Idea #	Points	Scoring 1st, 2nd, 3rd↑			Idea Units
1	2				Alexandra admired Robbie to have such a nice family
2	5				**WHAT'S THE MATTER WITH ALEXANDRA**
3	2				She received a letter from her parents.
4	2				with photographs of her family
5	4				She is homesick. (She misses her family)
6	3				She likes the Molinas. (The Molinas treat her so nicely.)
7	3				She loves being with Robbie's family.
8	3				but she felt sad
9	1				in the living room
10	4				Robbie proposed.
11	3				go out for a cheeseburger and french fries
12	3				she can use his Walkman
13	4				Alexandra accepted.
14	3				don't complain about his math teacher or his math work
15	3				she wants to have fun
16	4				Robbie turned off the lights
17	3				or else his father will get really angry (or else his father will kill him)
18	4				They heard a dog barking.
19	3				Alexandra found the dog' identification tag.
20	2				its name (owner's name)
21	2				telephone number
22	3				The telephone is no longer in service.
23	3				They will keep finding the family for the dog.
Total points					

Appendix 5: Scoring sheet

V3

Student Name:

Idea #	Points	Scoring 1st, 2nd, 3rd ↑			Idea Units
1	1				a national seashore park
2	5				**ENVIRONMENT**
3	3				a newsreporter
4	2				Cathy (woman), Bill (man)
5	4				interview
6	3				college students
7	2				Kurt (boy)
8	2				Joanne (girl)
9	4				hopes for the future
10	1				Northshore Community College
11	4				the issues on the minds of college students
12	1				Kurt's response
13	3				environment
14	3				environmental policies
15	3				politics
16	3				an Engineering student
17	2				studying electromechanical technology
18	2				going into a mechanical engineering program
19	2				designing automobiles and more efficient means of transportation
20	1				Kurt (boy)
21	1				Joanne's response
22	3				a business student
23	2				studying business administration
24	2				she'd like to own her own business some day
25	2				did work for several years
26	2				limited in what she could do
27	2				didn't have a college education
28	3				environment
29	3				crime
30	3				lack of available education

31	2				if you don't have Planet Earth what do you have (we have only one Earth)
32	2				we're just destroying what we've been given, and we cannot repair all the destruction that's going on (we cannot repair what we destroy)
33	1				Joanne (girl)
34	5				**WE CARE-LAND, SEA, AIR**
35	4				saving natural resources
36	3				recycling grains & animal feed
37	1				100 years ago
38	3				recycling aluminium cans
39	2				100%
40	1				today
41	3				our commitment to our quality environment
42	1				future
43	1				Anheuser Busch Company
Total points					

Appendix 6: Salient ideas used for measuring the sequence events of A1, A2, A3, V1, V2, and V3

Sequence	Salient ideas for measuring the sequence of events	
A1		
1	habit of borrowing money and not paying back	(借錢不還)
2	what would you do?	(你如何處理?)
3	give her a note of all the money that she owes me	(把她所欠的錢列在紙條上)
4	I think I would give her money	(這次會借錢給她)
5	ask her to give money back	(要求她還錢)
6	I wouldn't want to embarrass her at the cafeteria, at the food line	(不願在出納員面前使她難看)
7	to me, it depends on the situation	(我會斟酌情況)
8	in some friendships, I never expect to get the money back	(朋友呢，我不期待還錢)
9	I don't think it's healthy for them to have that kind of habit	(我不認爲這習慣是健康的)
10	ruin friendships	(有損友誼)
A2		
1	the biggest problem is the helmet	(最大問題在安全帽)
2	only 14 per cent wear helmets	(百分之十四騎士戴安全帽)
3	a discussion about the reasons	(不戴的原因)
4	not convinced they are useful	(不相信戴安全帽有效)
5	too much trouble	(太麻煩)
6	hot, ugly, and heavy	(太熱、太醜、又太重)
7	you drive carefully, but you can be hit by someone who is not a good driver	(你很小心，但也可能被粗心的駕駛撞上)
8	it's just a short distance, a few blocks	(只是短距離嘛!)
9	nobody else wears them	(別人都沒戴)
10	maybe you can be a good example for others	(如果你戴安全帽，別人可能就會跟著戴)
11	helmets do work	(安全帽眞的有用)

A3

1	many fatal fires in Taiwan	(在台灣發生許多致命的火災)
2	the emergency exits have been blocked	(緊急出口被堵住)
3	a pile of bodies by the door	(一堆屍體堆在門邊)
4	in this case, there were four emergency exits, three were blocked	(這一次，四扇門其中三扇被堵住)
5	buildings were built according to the regulations, the regulations say you must provide so many exits for a certain size of floor area, or certain number of people that will occupy the premises	(建屋時，他們的建築是合法的。建築法對室內面積、使用人數、和緊急出口數目都有規定)
6	the occupant or the user of the building does things that make it unsafe	(使用者將出口附近挪爲他用導致危險)
7	our government should enforce the law more strongly	(政府應強制執行法令，必免悲劇再度發生)
8	maybe with a little bribe, inspectors just close their eyes	(檢查人員收受賄賂，視而不見)
9	maybe this case will spur public action to protect people	(此次事件再次提醒公眾採取行動保障人民)
10	if there is someone in your building that is blocking exits or locking emergency doors, then get them to open them up	(注意自己居所緊急出口是否被堵住，保持暢通)

Sequence	Salient ideas for measuring the sequence of events	
V1		
1	Molley invited children to play charades in the hospital	(Molley 邀請小朋友玩『比手劃腳』的遊戲)
2	Carl didn't want to play and said it was for babies	(Carl 不願參加，聲稱是幼兒遊戲)
3	Frank got the name of the movie film: Snow White and the Seven Dwarfs	(Frank 猜出片名：白雪公主與七個小矮人)
4	The real reason for not joining the game is that Carl is having his tonsils removed tomorrow, which is his birthday.	(眞正不高興的原因是明天將是他的生日，得在醫院動手術)
5	Therefore his party is cancelled and the clown will not be coming.	(原本計劃的宴會和小丑泡湯了)
6	After his operation, Carl reminded the nurse of the surprise she promised him.	(手術後， Carl 提醒 Molley 要給他的『驚喜』)
7	No smile, no surprise.	(沒有笑容，就沒有『驚喜』)
8	A surprise party was arranged in the hospital, with a special guest, the clown.	(醫院果然安排了生日宴會和小丑)
9	Carl was satisfied and wished to play charades.	(Carl 開心了，盼望能玩『比手劃腳』的遊戲)
V2		
1	You are very lucky, Robbie, to have such a nice family	(你好幸運，有如此美滿的家庭)
2	I miss my parents very much.	(我很想念我的父母)
3	You can use my Walkman.	(你可用我的隨身聽)
4	Why don't we go out for a cheeseburger and french fries? That'll cheer you up.	(我們出去買些起司漢堡和薯條，或許你會開心些)
5	Please don't complain about your maths teacher.	(請不要抱怨你的數學老師)
6	I like to have fun	(我希望有一段愉快的時光)
7	I have to turn off the lights, or my father will get really angry.	(我必需關燈，否則父親會生氣的)
8	Do you hear something? It sounded like a dog barking.	(你聽到聲音了嗎？聽起來像狗叫的聲音)
9	The number you are calling is no longer in	(這個電話號碼已不在使用)

	service.	
10	We'll find them. Don't worry, Alexandra.	(我們會找著他們， Alexandra, 請不要煩惱)

V3

1	newsreporters interviewing two college students about their hopes for the future	(新聞記者訪問兩位大學生對未來的希望)
2	their feelings about the environment	(對環保的看法)
3	I find a lot of students were very concerned about the environment and environmental policies, and what's going on in national politics.	(學生們很關心環保、環保政策、和當今國家政治)
4	I'm studying electromechanical technology.	(我在修習電子科技)
5	I will be going into a mechanical engineering program, and I hope to be designing automobiles and more efficient means of transportation.	(我將進入機械學科，學習有關汽車與運輸工具)
6	I'm studying business administration.	(我學企管)
7	I want to get into the business field. I'd like to own my own business.	(我希望進入商業界，並擁有自己的企業)
8	I found that I was very limited in what I could do, because I didn't have a college education.	(因未受大學教育，潛能受到限制)
9	Issues in the minds of college students are environment, crime, and the lack of available education.	(當今大專學生所關心的有環保、犯罪問題、和缺乏教育機會)
10	An ad about the preservation of natural resources.	(環保與資源回收之廣告)

Appendix 7: Speech Rate of A1, A2, A3, V1, V2 and V3

Six Testings	Length of Time (seconds)	Total # of words in text	Total # of Idea Units	Word/minute	Idea #/minute
A1	188	597	31	191	9.9
A2	217	747	37	207	10.2
A3	188	563	34	179	10.9
V1	311	540	20	104	3.9
V2	222	378	23	102	6.2
V3 (interview)	122	352	41	173	13.7
V3 (ads)	27	67		149	
V3 (music)	30	55		110	

Name	male voice	female voice
01-Yang	40.34	48.32
02-Hsu	41.55	52.84
03- Liau	38.89	44.27
04- Lu	34.06	39.99
05 -Luo	29.71	37.37
06- Liou	31.52	44.27
07-Li	36.96	33.09
08-Jang	34.78	33.44
09-Fan	31.16	33.56
10-Jia	30.07	29.52
11-Jian	24.4	27.37
12-Tsai	25.12	21.42

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